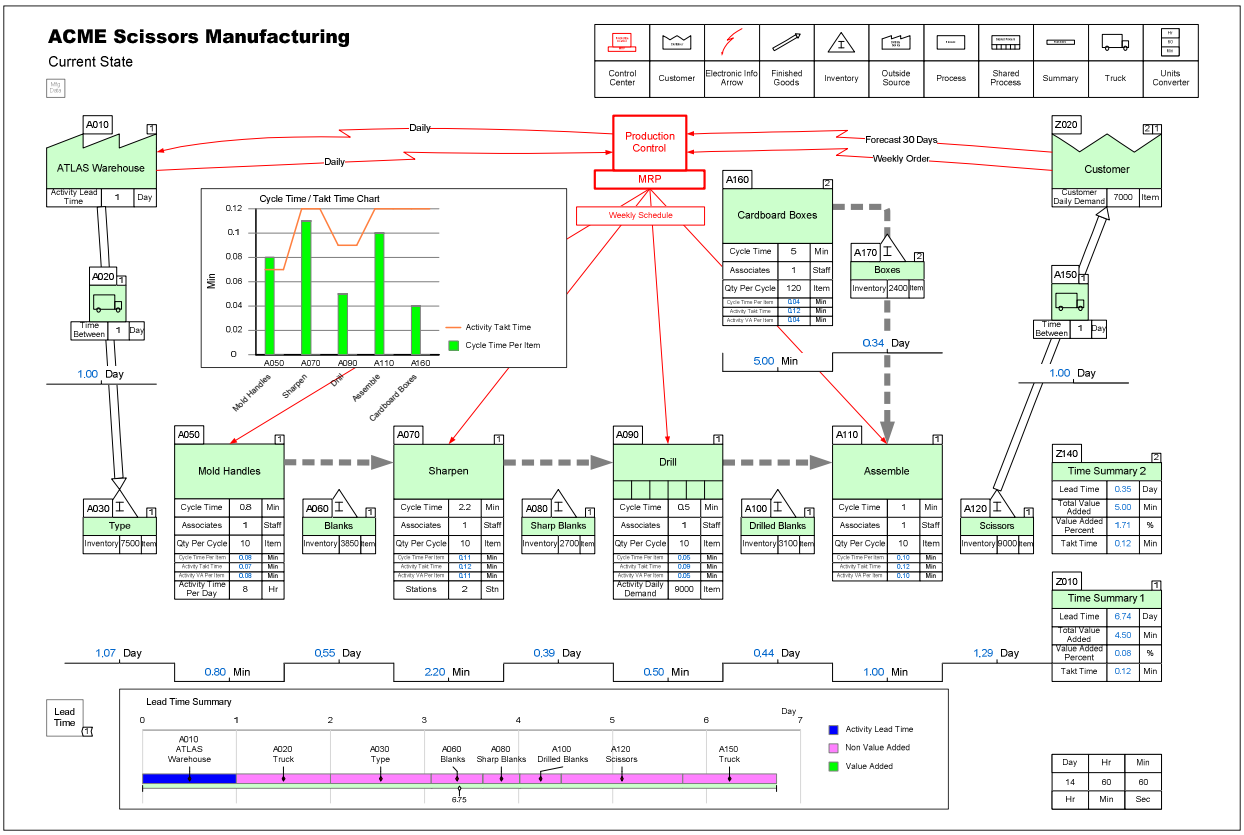
eVSM - The easiest way to visualize the value stream

eVSM v5 User Guide



Value Stream Maps

Spaghetti Diagrams

Communication Circles

A3 Reports

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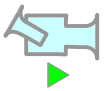
1. The eVSM Environment

Help Movies

These and other short movies about using eVSM are available at www.evsm.com/help


Start Drawing

eVSM Pre-requisites and Updates

eVSM requires Windows 2000/XP/Vista/Win7, Visio 2003-2010 (32-bit), and Excel 2000-2010 (32-bit). You can check on the latest eVSM version available at:

www.evsm.com/updates

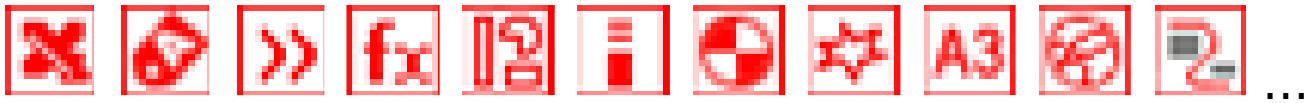
Starting eVSM

Start eVSM

The best way to start a blank value stream map is to double-click the eVSM icon on your desktop.

If your Visio security setting is set to anything but low, messages will come up asking for permission to “Enable Macros”. You must answer “Yes” to these messages for eVSM to operate.

eVSM Toolbar



The eVSM toolbar is located just above the drawing page. If this is not visible then the eVSM software is not properly installed or the Visio security setting on your system is preventing running the macros that create the toolbar.

For information on each of the buttons, see the “Toolbar Button Index” at the back of the user guide.

eVSM Help Site

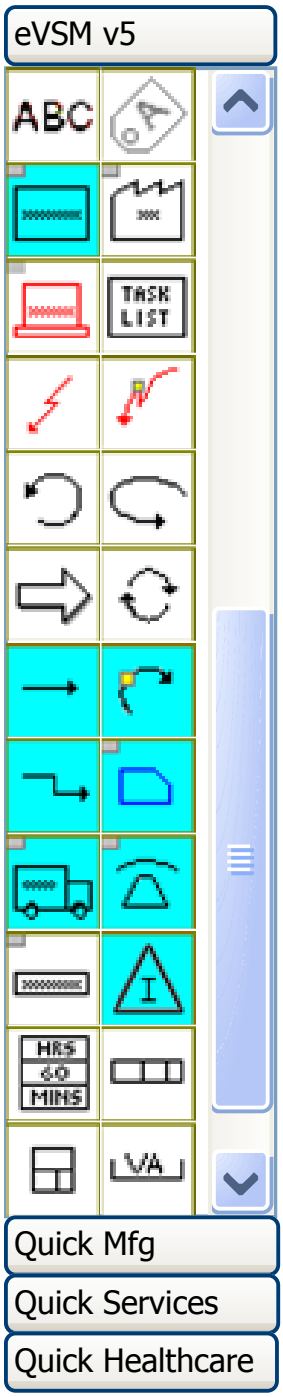
The Help button on the toolbar requires an internet connection and will open up a web browser pointed to the eVSM help site at www.evsm.com/help.

The help site is tested with Internet Explorer which is the recommended browser if there are any problems.

eVSM Support

We offer technical support for the latest release of the eVSM software. Please email us at support@evsm.com.

eVSM Shapes & Stencils



eVSM has a collection of value stream mapping shapes that appear in eVSM stencils to the left of the drawing page.

These shapes, behaviors, and corresponding functions have been designed from the outset to support the series of lean workbooks from the Lean Enterprise Institute (www.lean.org) , the Lean Enterprise Academy (www.leanuk.org) and their worldwide network partners. The primary workbook impacting the design has been “Learning To See”.

As software usage has become widespread across multiple industries, the icon language has been extended to keep pace with practitioner requests. For Lean Healthcare implementations, the software now supports all publications developed by Lean Healthcare West (www.leanhealthcarewest.com).

To make it easier to navigate the comprehensive set of shapes, they have been organized into family stacks (blue icons in the stencil) and into the subset stencils.

Re-opening eVSM Stencils

eVSM Stencils must always be kept open when working with maps. If you have “lost” the eVSM stencils from your drawing file, here are the steps to re-open them.

In Visio 2003/2007:

- Click “File > Shapes > Open Stencil…”
- Navigate to the following folder:

  “C:\Program Files\GumshoeKI\Visio2002\Setup\Solutions”
- Select all the eVSMIcons.vss stencil file in this folder and then click the Open button.
- Save your Visio file so it “remembers” this stencil for next time.

In Visio 2010:

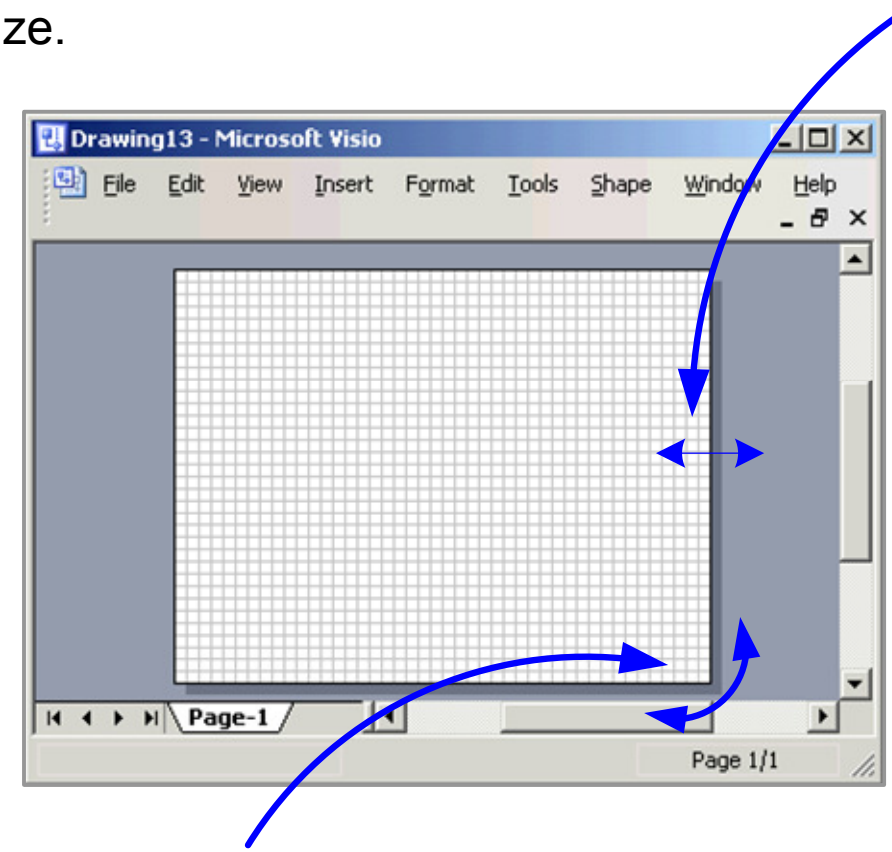
- In the Shapes pane (on left) click "More Shapes > Open Stencil..."
- Follow the same steps as above.

Note that on 64-bit Windows, the file location is:

"C:\Program Files(x86)\GumshoeKI\Visio2002\Setup\Solutions"

Page Resizing

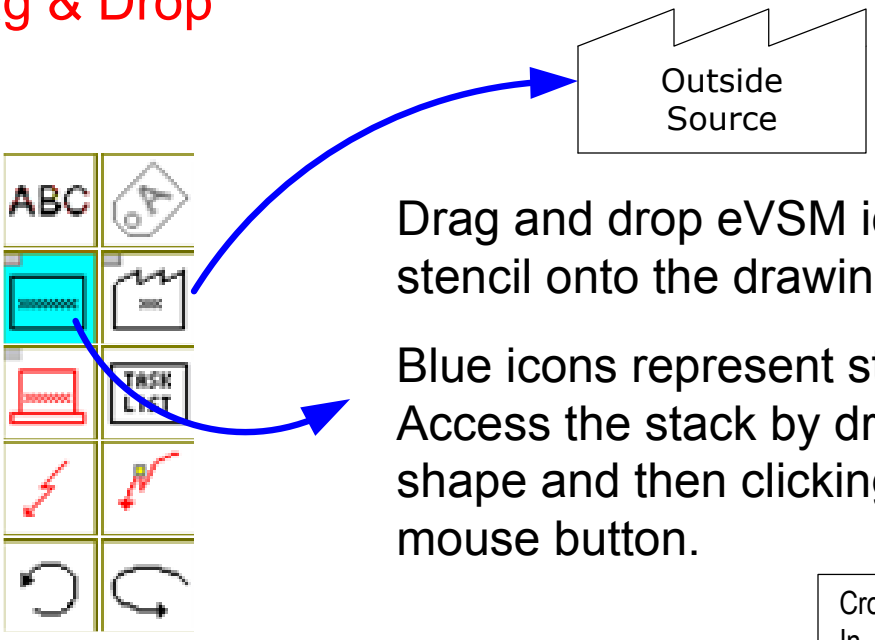
To resize the page, hold down the CTRL key and move the cursor to the edge of the page. The cursor will turn into a double-headed arrow. Simply grab the edge and pull it to the required size.



Note: Avoid page corners when re-sizing the page. The page corners allow rotation of the drawing page. However, there is a Visio bug which can corrupt the drawing file if the page is rotated.

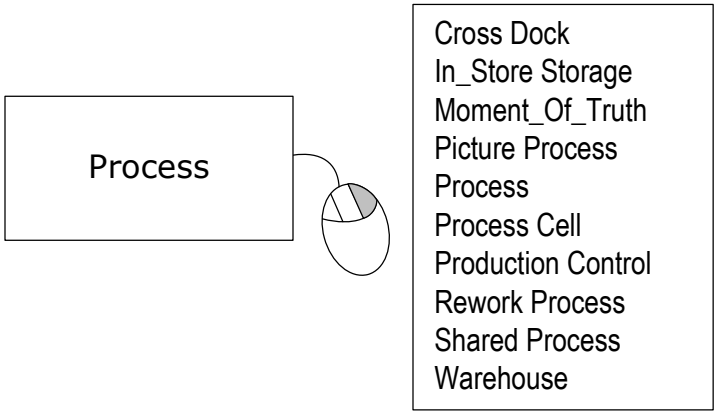
If you rotate the page accidentally, use "Edit>Undo" to recover. In Visio 2010, use the Undo button in the top menu bar. If it is too late to Undo, then copy/paste the drawing content to a new page.

Drag & Drop



Drag and drop eVSM icons from the stencil onto the drawing page.

Blue icons represent stacks of shapes. Access the stack by dragging out the shape and then clicking the right mouse button.



Snap To Grid

Shapes are designed to be grid-sized. The drawing page has a grid on it. Use “View > Grid” to turn grid visibility on. Snap shapes to grid locations for easy alignment.

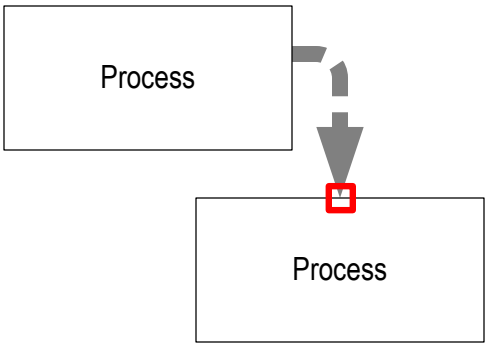
Resizing Shapes

Avoid resizing shapes whenever possible. Shapes are designed to fit together and resizing a shape will make “fitting” shapes together difficult and create extra work.

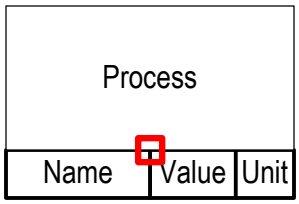
Connecting Shapes - Glue

eVSM shapes have built-in connection points on their boundaries that allow them to be glued together. Gluing shapes together has two uses:

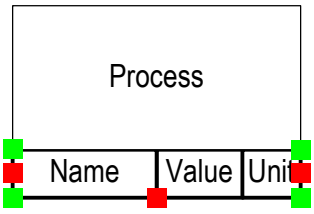
- It makes modifying the map simpler because moving a parent shape causes the child shape to move with it.
- eVSM infers association between shapes by looking at the parent-child glue connections between shapes.



Visio shows a glue connection at the point of gluing with a red box. When the arrow head is moved to a point where Visio is about to glue it to the lower process block, a red box is temporarily displayed.



Similar to connecting arrows, the red box appears when you move a data shape to the bottom of an activity shape.



When a child shape is glued to a parent and you select the child shape you will see some red dots on its periphery to indicate that it is glued.

eVSM Glue Check On/Off

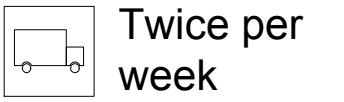
Toggle the Glue Check button in the toolbar for a visual display of the glue connections.

Text Editing

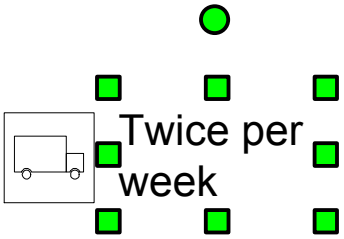
Double-click a shape to edit its text.

Manipulating Text

Double-click a shape to edit its text.

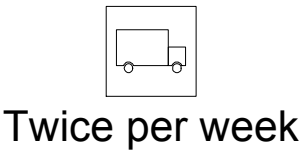


The Visio Text Block Tool (located behind the Text Tool in the Visio Standard toolbar) can be used to move the text relative to the shape location.



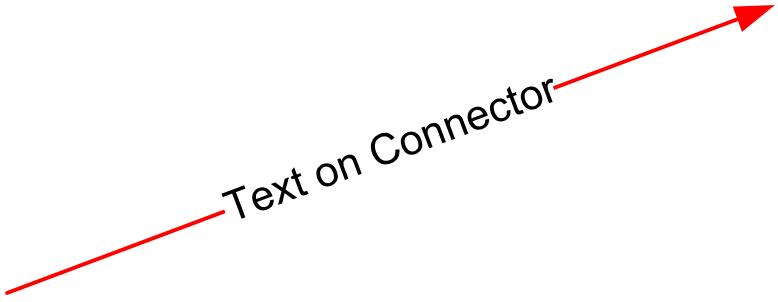
Text Block Tool

The Text Block Tool displays control handles around the text belonging to a shape. These control handles can be used to position and size the text block.



> **Caution:** Be sure to de-select the Text Block Tool when finished.

All shapes in Visio can have their own text. This includes eVSM Connector Arrows.



Copying Shapes

“Edit>Copy” followed by “Edit>Paste” (or Ctrl+C and Ctrl+V) work in Visio just like any other Windows program.

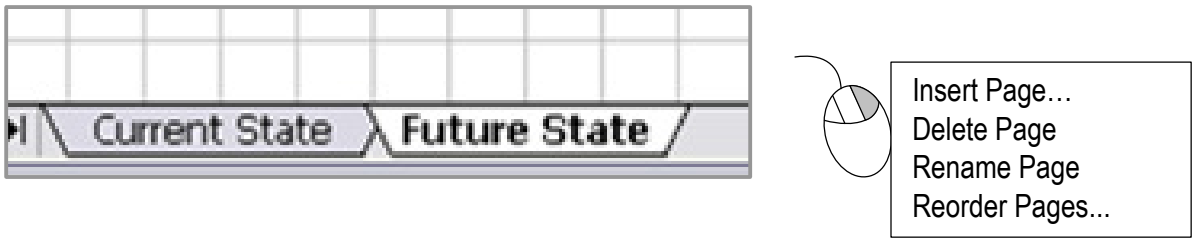
Another method is to hold the Ctrl key down, and then move one or more shapes to create duplicates. You must keep the Ctrl key pressed for this to work. Otherwise you will just end up moving the original shapes.

Undoing Mistakes

The Visio toolbar has an “Undo” button to reverse any mistakes (also, “Edit>Undo”)

Visio Pages

Pages can be created, deleted, etc. via the right-mouse menu on the page tabs.

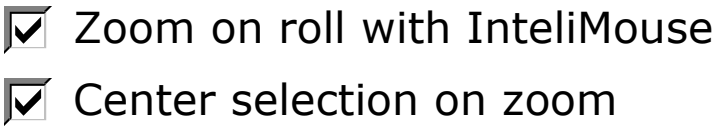


Rules for Visio drawing page naming:

- Page names must start with an alpha character
- Page names must be limited to 0-9 and A-Z characters. Characters such as [!@#$%^&*()|+-?] are not allowed
- Page names should be kept as short as possible

Zooming In and Out

- **CTRL-SHIFT-Drag** Select region (Zoom into the selected region).
- Try the Visio menu “View > Pan and Zoom” for another navigation option with a mini-window.
- To set up the mouse scroll wheel to zoom, use the Visio menus: “Tools > Options > General” and check:



- Visio 2010 has zoom controls at the bottom-right of the window.

DO use a mouse to be productive with eVSM.

DO glue everything and use Glue Check button.

DO Snap shapes to grid locations.

DO zoom in fast with CTRL-SHIFT-Drag.

DO zoom out quickly with CTRL-W.
NOTE: In Visio 2010, use CTRL-SHIFT-W. CTRL-W will close the page.

DON'T resize eVSM Shapes whenever possible.

DON'T close eVSM Stencils.

This area intentionally left blank

2. Quick Manufacturing

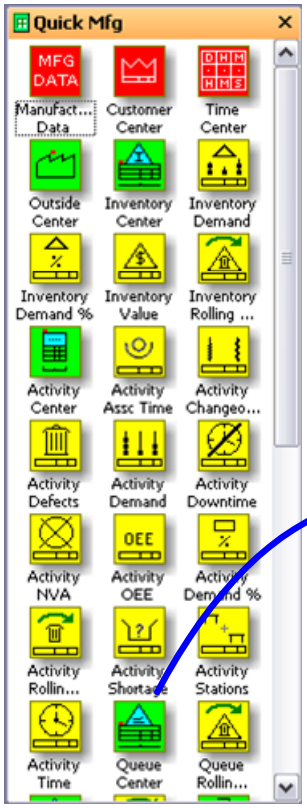
What is Quick eVSM ?

Quick eVSM denotes stencils that are built on eVSM to simplify, standardize, and speed up creation of value stream maps in an application area. The ‘Quick Mfg’ stencil in eVSM v5 has been built for VSMs at a plant level.

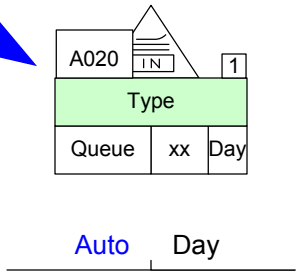
Watch a movie about using the Quick Mfg stencil.

Download Visio file containing example maps created with the Quick Mfg stencil.

Quick Mfg Stencil



Macro Shape



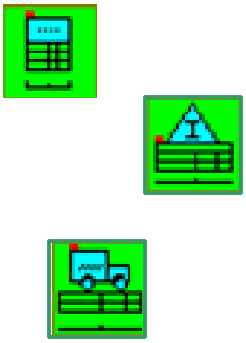
Can Quick eVSM stencils be used on existing maps ?

You can only use the Quick eVSM stencils for completely NEW maps. The stencils rely on a standard set of names, units, and eqn's that old maps will not be compliant to.

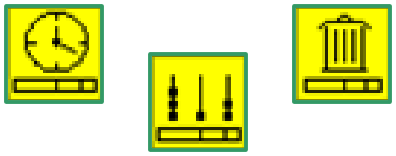
Quick eVSM Stencils : Icon Colors

The icons in the Quick eVSM stencils (such as the Quick Mfg stencil) have the following color conventions:

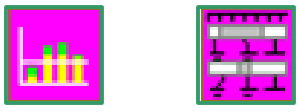
Red Quick eVSM Icons need to be placed on EVERY map and should be the first items placed on the map.



Green Quick eVSM Icons represent INDEPENDENT macro shapes. Blue shapes in the icon denote 'Right Mouse Button' options that can change the shape visual (e.g. from truck to ship).

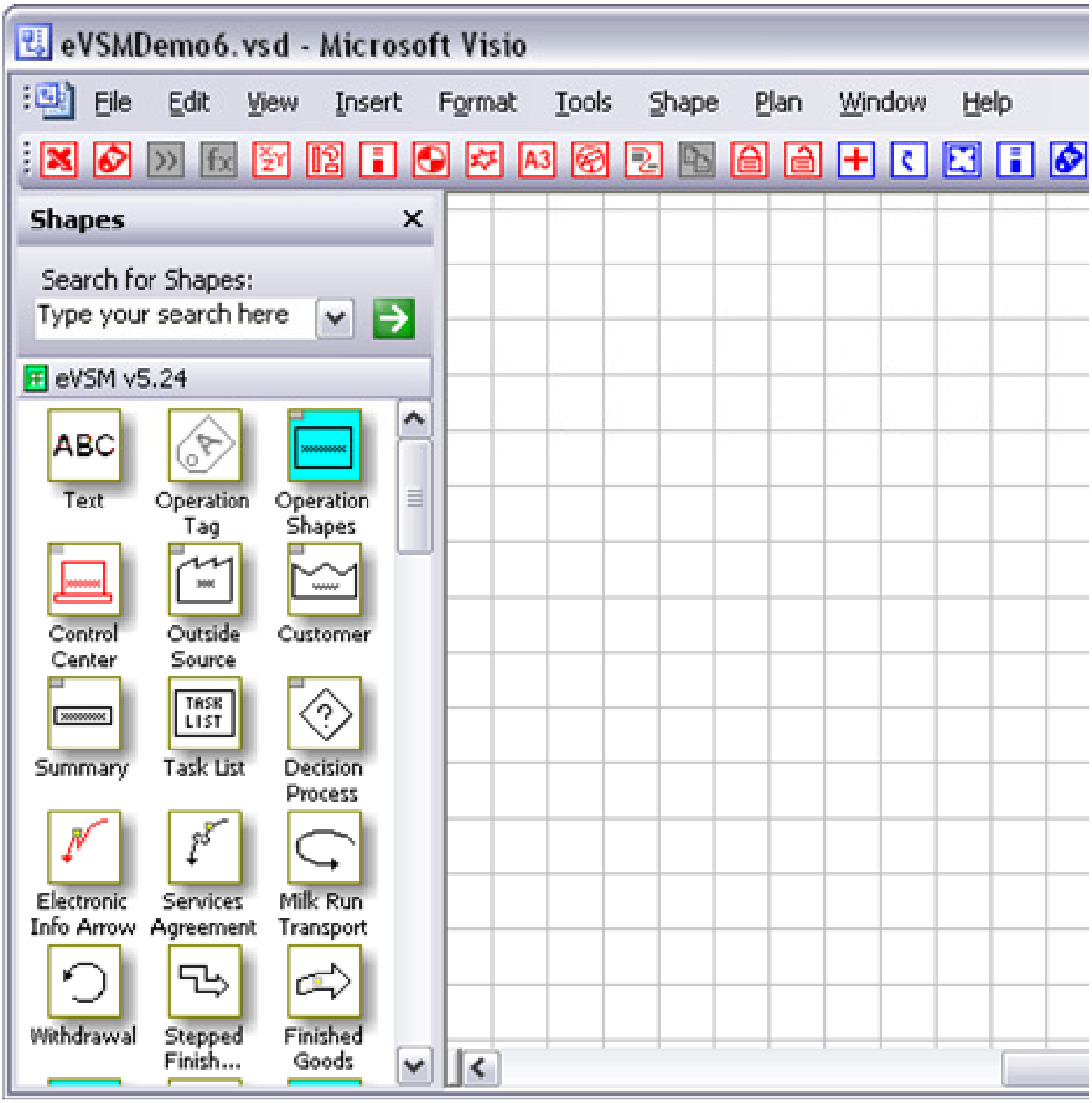


Yellow Quick eVSM Icons represent optional add-ons to the macro shapes in the Green Icons. These icons are named to correspond to the Green icons to which they can be added.

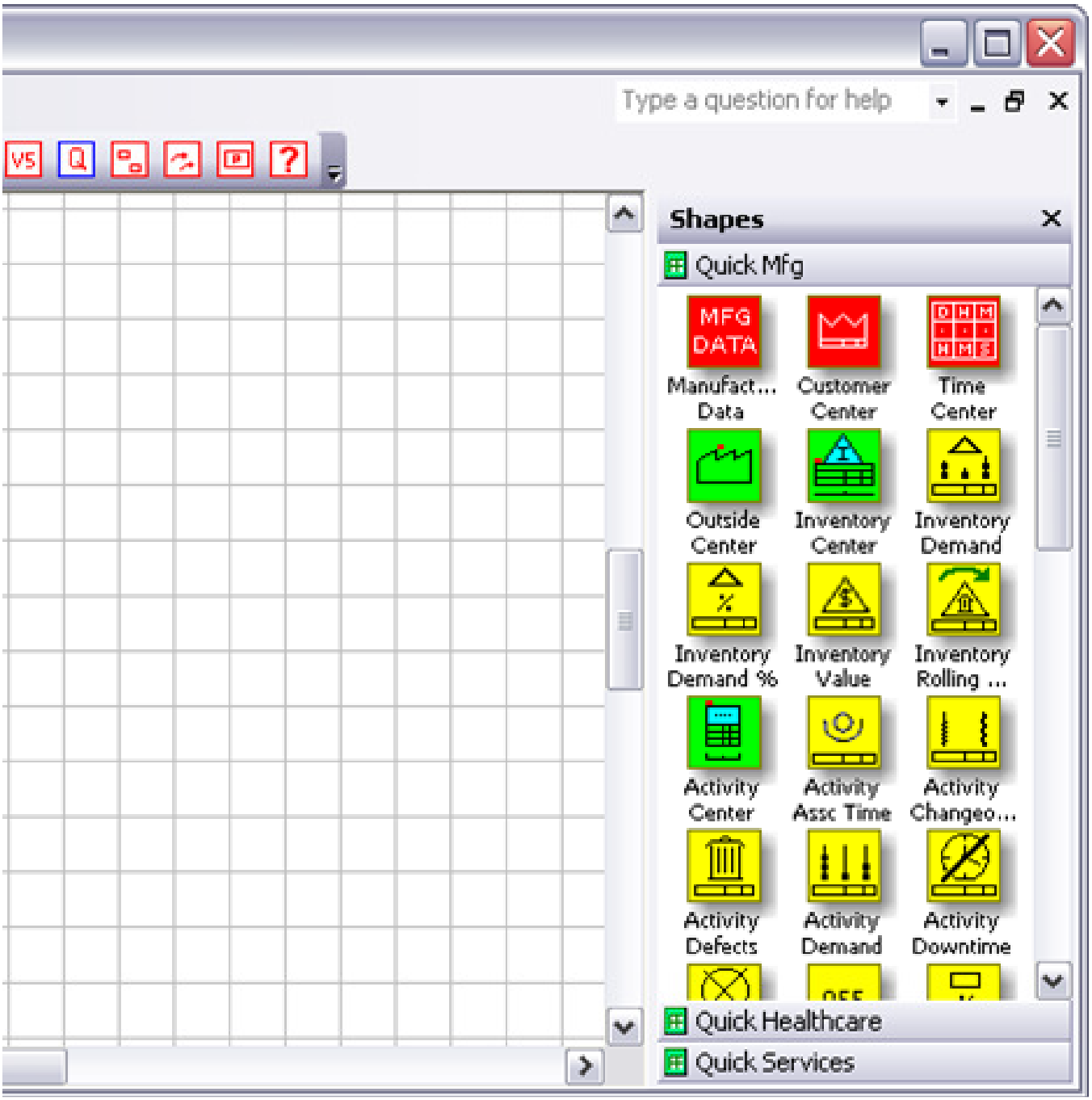


Magenta Quick eVSM Icons represent pre-configured charts that can be dropped on the page and plotted.

Recommended Layout for Quick eVSM



Note that the main eVSM stencil (typically named eVSM vX.XX) is on the left of the screen. We will refer to this as the "Main Stencil". Its important that this stencil is never closed because closing it disables eVSM toolbar functions.



Any Quick eVSM stencils (such as Quick Mfg) are docked on the right of the screen. We will refer to such stencils as the "Quick Stencil". Click and drag the Quick Stencil header bar to move it to this docked position.

Icon Help

Quick eVSM Icons all have associated help text that is visible if you hold your mouse over the appropriate icon in the stencil.

Drag and Drop Behavior

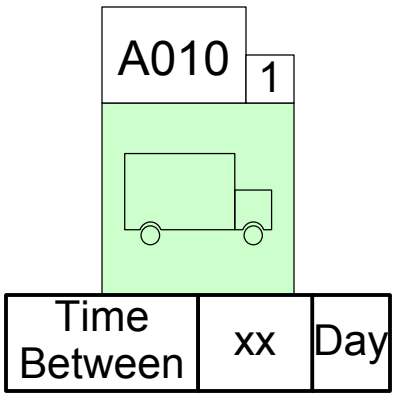
When you drag and drop an icon on the page it creates either a single shape or a macro shape (a set of connected Shapes).

Red, green, and magenta icons are independent and do not need to be attached to other items when they are being dropped on the page.

Yellow icons represent add-on shapes. They need to be positioned and attached to their parent shape as part of the drag & drop process.

Moving Shapes On The Map

When the macro shapes corresponding to the green icons are dragged onto the page, they include an ‘Anchor Shape’ that is shaded in light green. To move the macro shape as a whole, this anchor shape should be moved. In the diagram, the truck is the anchor shape.



Zooming In and Out

- **CTRL-SHIFT** Select region (Zoom into the selected region)

Page Resizing

When you run out of space on the drawing page, DO NOT resize eVSM shapes. Instead just make the drawing page bigger. An easy way to do this in Visio is to hold down the CTRL key and move the cursor to any edge of the page. The cursor will turn into a double-headed arrow. Just grab the edge and pull to required size. Avoid the page corners when re-sizing the page.

Snap To Grid

Shapes are designed to be grid-sized. Snap shapes to grid locations for easy alignment.

Resizing Shapes

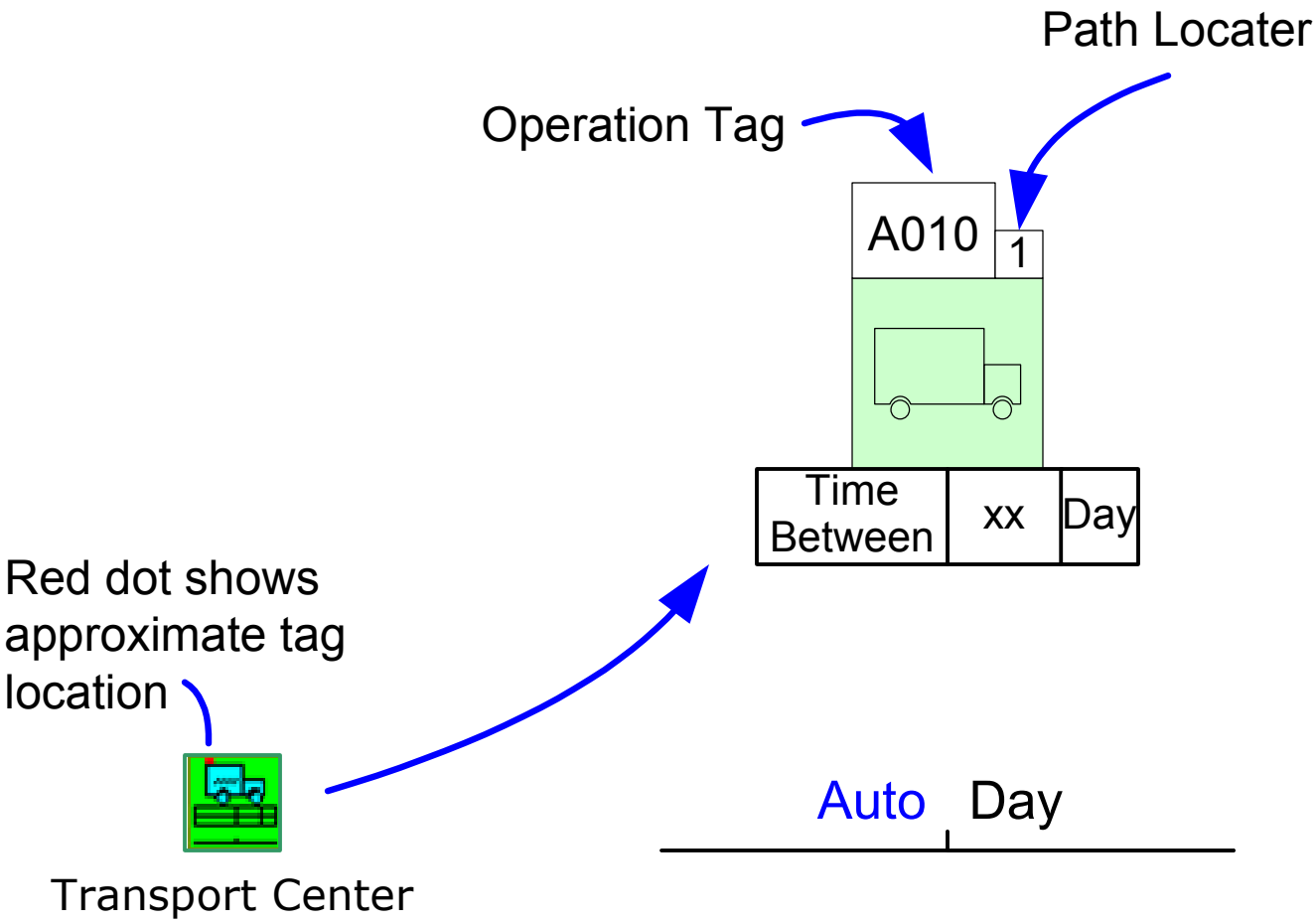
Avoid resizing shapes whenever possible. Shapes are designed to fit together and resizing a shape will make “fit” difficult and create extra work.

Text Editing

Double-click a shape to edit its text.

Tagged and Path Located Shapes

The green icons in the stencil have shapes that are pre-tagged via an “Operation Tag” and pre-assigned to Path 1 via the “Path Locater”.



When the shape is dragged onto the map its operation tag will “auto-number” to create a unique tag ID. You can double-click and change the ID but it MUST be unique on the map and it MUST be an alphabetic character followed by 3 numerals.

The charts in Quick Mfg are plotted in tag alphabetic sequence order.

Data Shapes

Quick eVSM data shapes have 3 types of entries:

Shapes with xx in the center field indicate values that MUST be entered.

Cycle Time	x.xx	Min

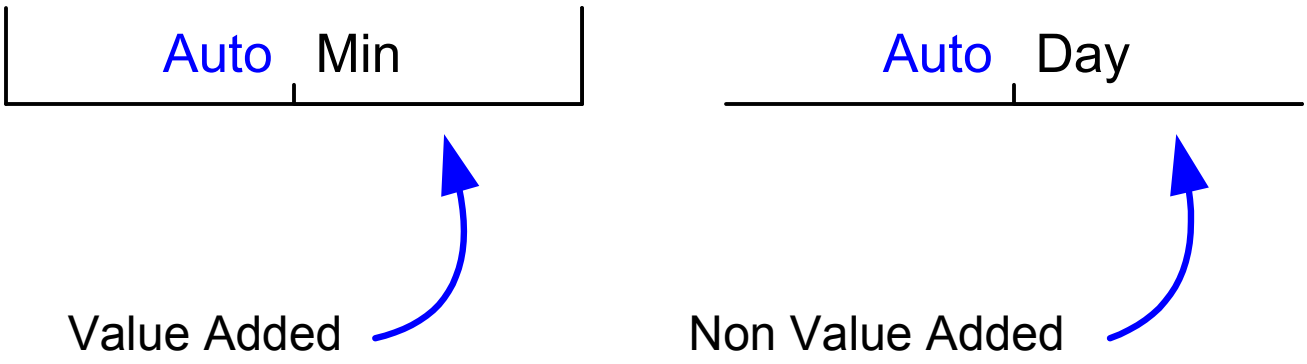
Some shapes have default values already entered. Override these when necessary.

Batch Size	1	Item

Any shapes with ‘Auto’ fields should be left alone. They will be automatically calculated.

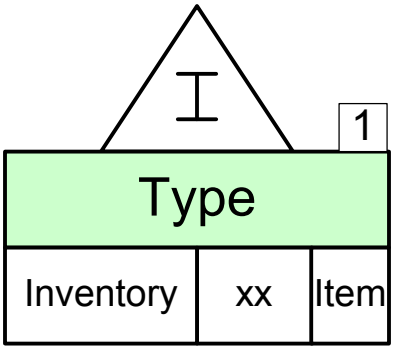
Cycle Time Per Item	Auto	Min
Activity Takt Time	Auto	Min

Most data shapes have a Name, Value, Unit composition. The exception are the ‘Value Added’ and ‘Non Value Added’ shapes where the name is implied.

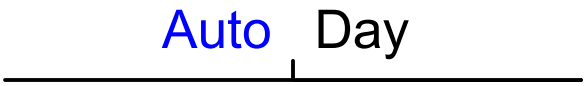


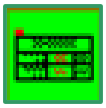
Path Locater shapes

Every macro shape that has a Value Added (VA) or Non Value Added (NVA) data shape also has a ‘Path Locater’ shape that that defaults to Path 1

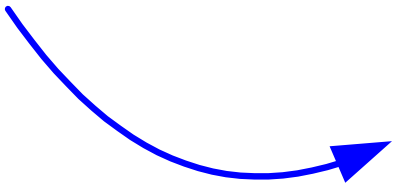


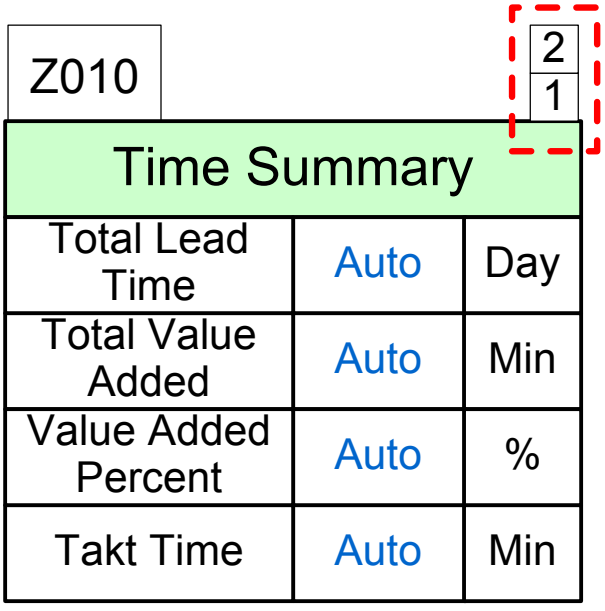
This variable is used to decide if the VA or NVA time component contributes to the ‘Lead Time’ and if the VA component contributes to the ‘Total Value Added’ in the “Time Summary”. If a component is not intended to contribute to the total, its path locater shape should be deleted or changed to a different path number.





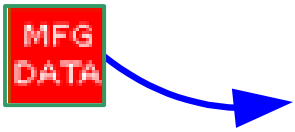
Time Summary





Note the ‘Path Locator’ shapes glued to the top of the ‘Time Summary’ shape. These filters limit the summation calculation to the path numbers (1 and 2 in this case).

Drawing Your First Map With Quick Mfg Stencil

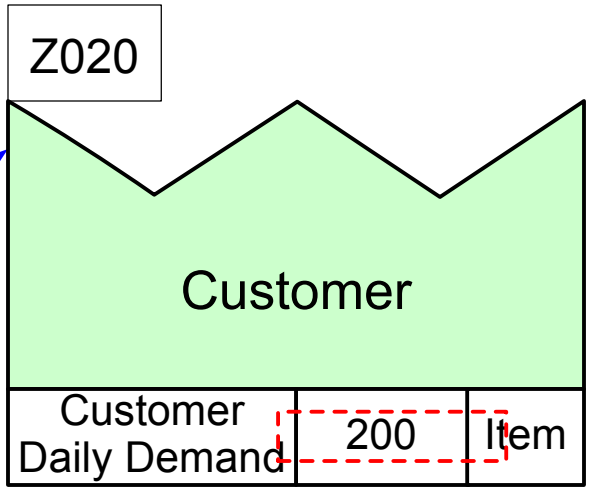


Manufacturing Data

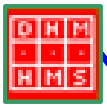
Red icons are MANDATORY on the map and must be the first things that are dragged out onto a new map.

Place the 'MFG Data' on the bottom left of the page.

Customer Center



Place the 'Customer Center' on the top right of the page and enter the "Customer Daily Demand" value (let's say 200 items per day). Note that multiple customers can exist on a map.



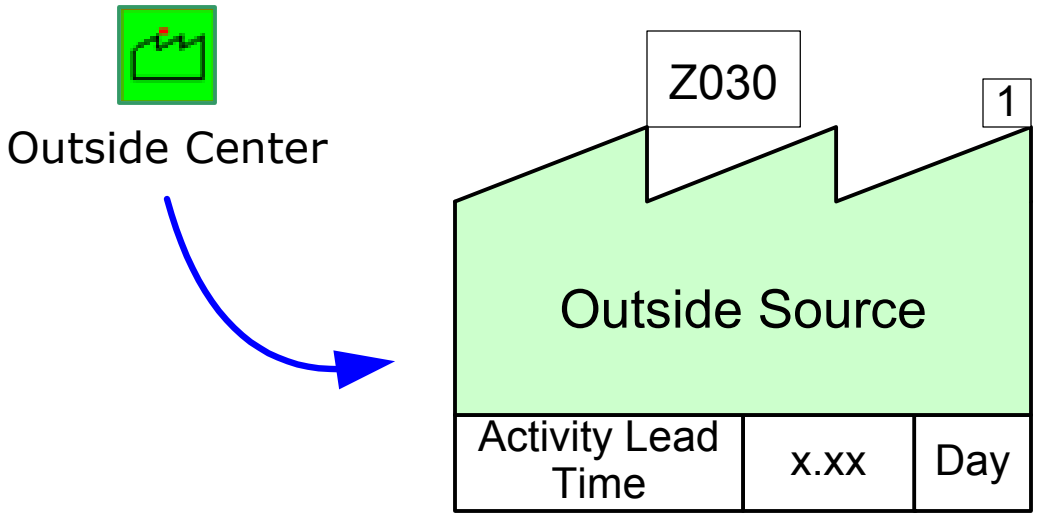
Time Center

Day	Hr	Min
15	60	60
Hr	Min	Sec

Place the 'Time Center' on the bottom left of the page and enter the number of production hours per day for the map as a whole. Production hours should exclude planned breaks (let's say 15 hours per day).

Outside Center

Drag out the ‘Outside Center’ and place it to the top left of the map.

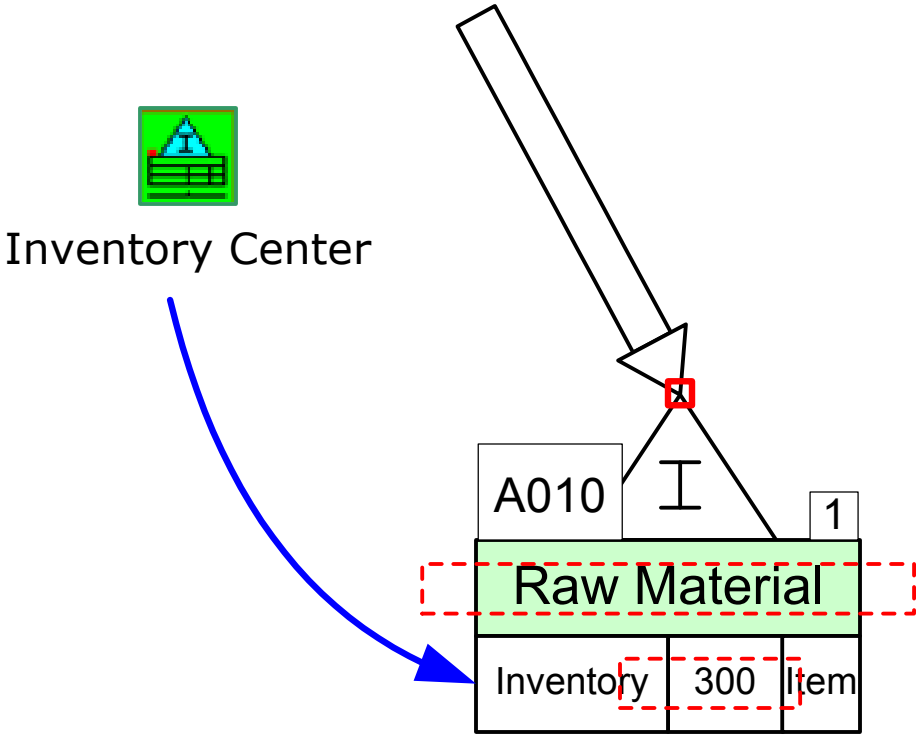


Inventory Center

Drag out the ‘Inventory Center’ and enter the inventory type and amount as shown. The flat line at the bottom represents the ‘Non Value Added’ time associated with the inventory.

Take the end of the ‘Finished Goods’ arrow and connect it to the top of the Inventory triangle. The red square appears briefly to indicate a glue connection.

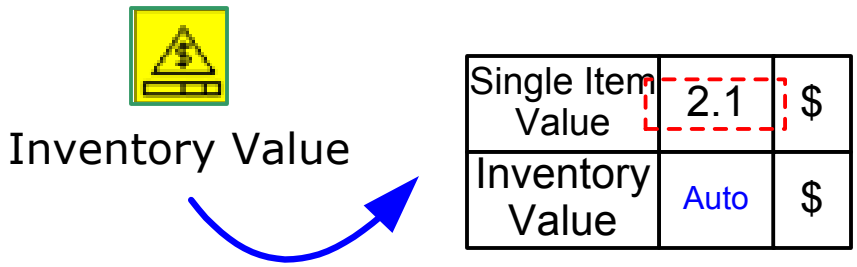
Inventory Center (Cont'd.)



Auto Day

Optional Inventory Value Shape

The inventory value is an optional data shape that can be connected to the bottom of the Inventory Center and can be useful in calculating the value of the inventory.



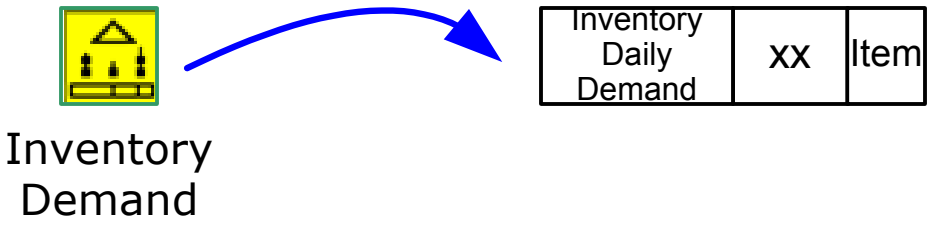
Optional Inventory Demand Shape

The Inventory Demand shape can be added to the Inventory center. This would impact the calculation of the NVA time (Non Value Added Time) corresponding to the inventory center. Without an explicit ‘Inventory Demand’ shape the NVA time in days is calculated as:

Inventory (Item) / Customer Daily Demand

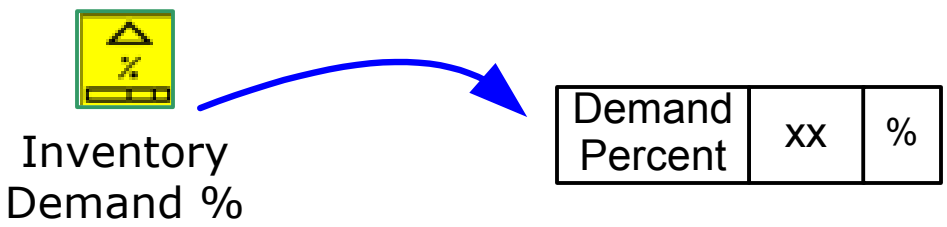
This calculation is replaced by :

Inventory (Item) / Inventory Daily Demand



Optional Inventory Demand % Shape

An alternative way to specify the demand on an inventory center is to add the ‘Demand Percent’ of the Customer Daily Demand that passes through that Inventory.



This value is ignored if an “Inventory Daily Demand” shape exists at the inventory center

Inventory Quantity Specification

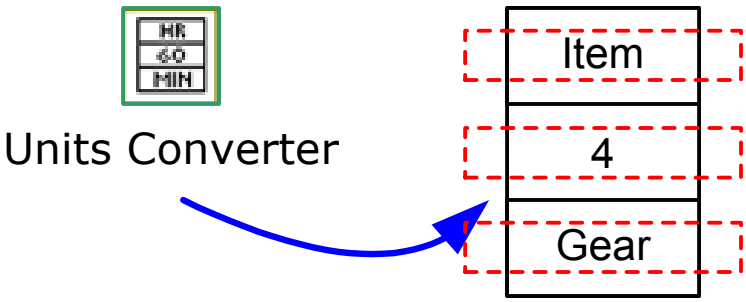
The word ‘Item’ refers to a unit of finished goods. Sometimes the inventory can be made up of a component that is used multiple times within one unit of finished goods.

Let’s say that 4 gears are used in each Item of finished goods and we want to represent an inventory of gears. This is done in 3 steps:

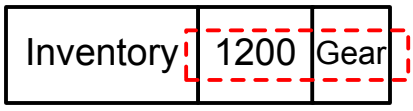
First, click on the ‘Name Unit Manager’ (listed as “Variables”) in the toolbar and use the dialog to create a new unit called ‘Gear’.

eVSM Name and Unit Manager

Second, go to the main eVSM Stencil and drag out a ‘Unit Converter’ shape. Use it to show that there are 4 gears for every finished goods item.



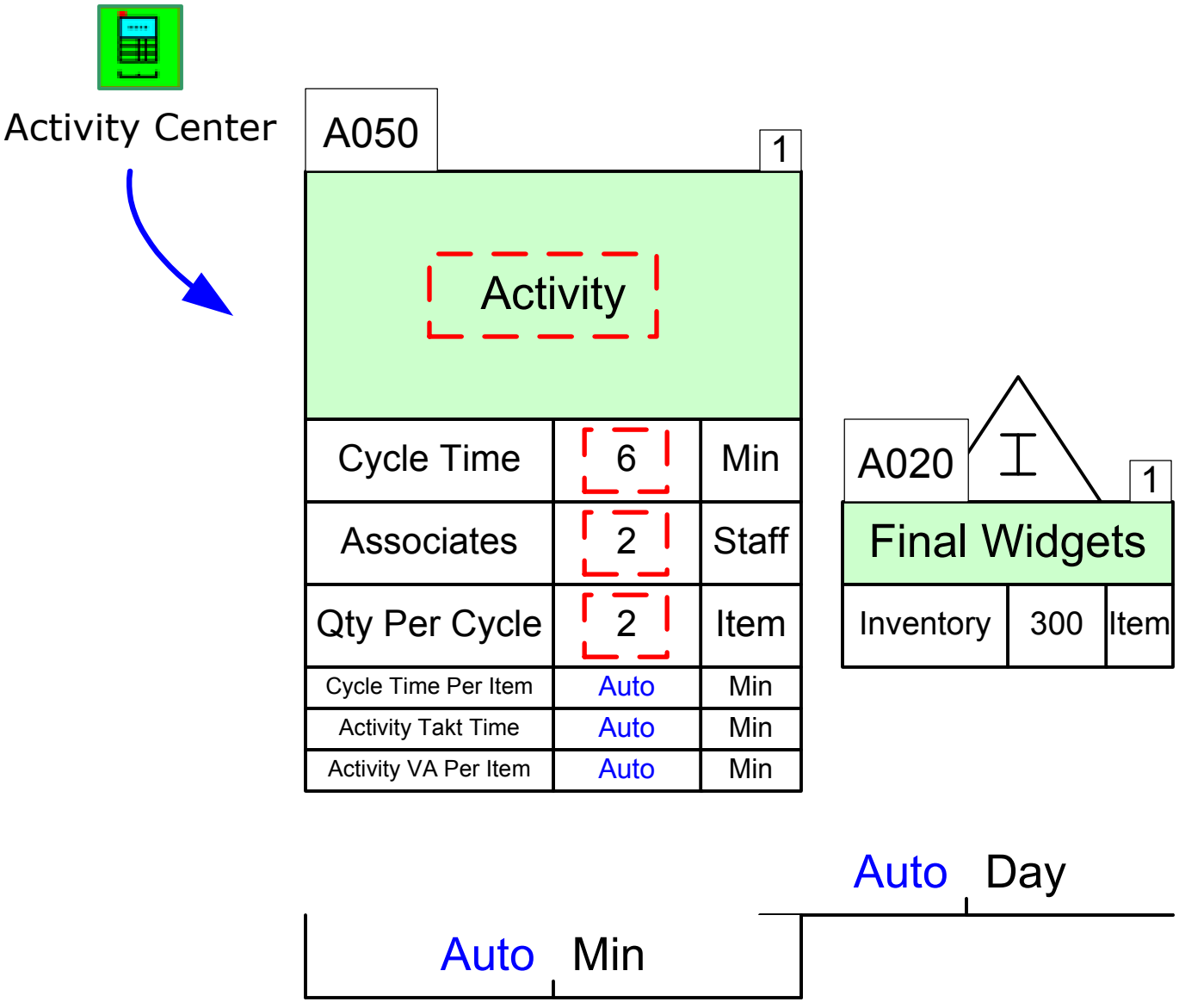
Finally, specify the inventory as the appropriate number of gears.



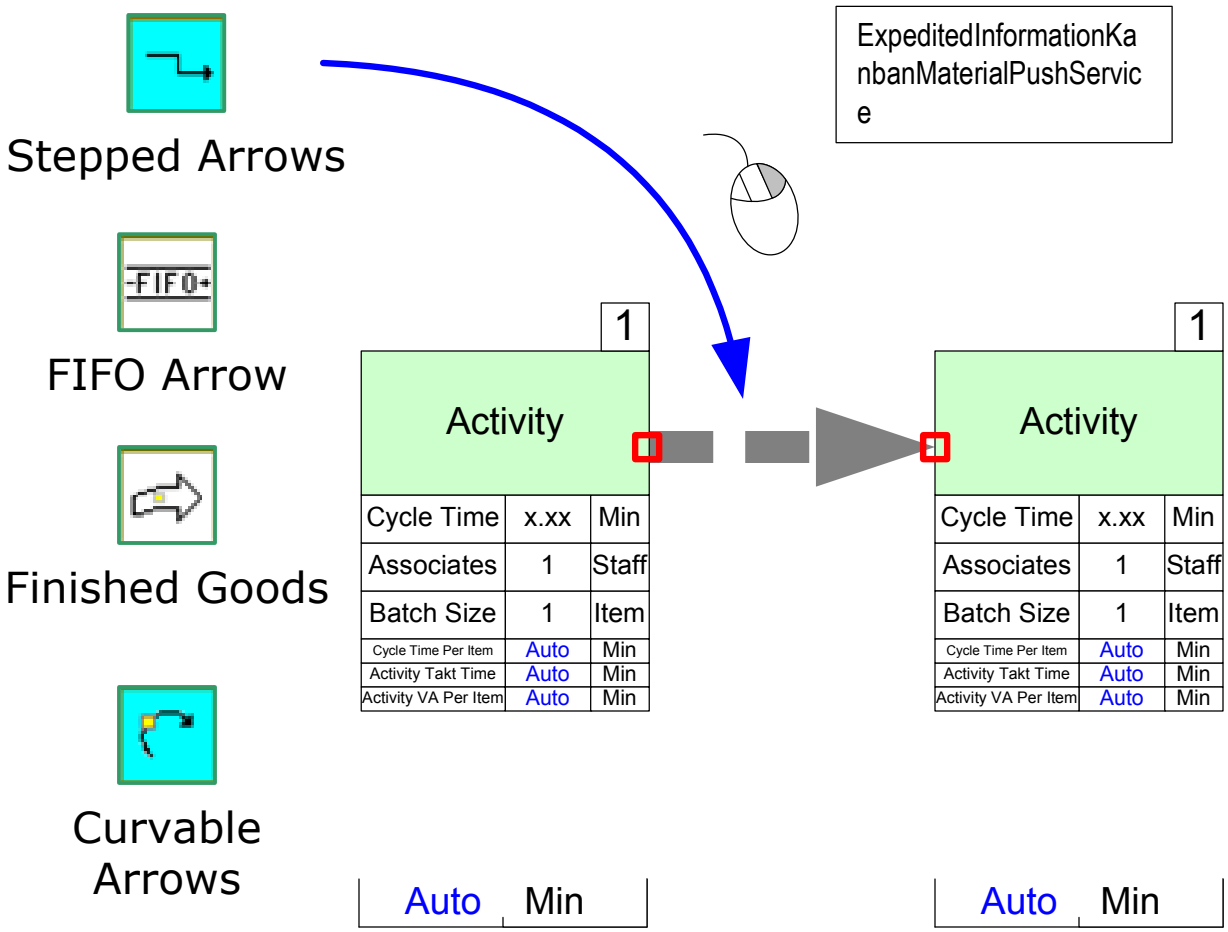
Adding Activity Data

Drag out the ‘Activity Center’ and position it as shown. Type in the data indicated.

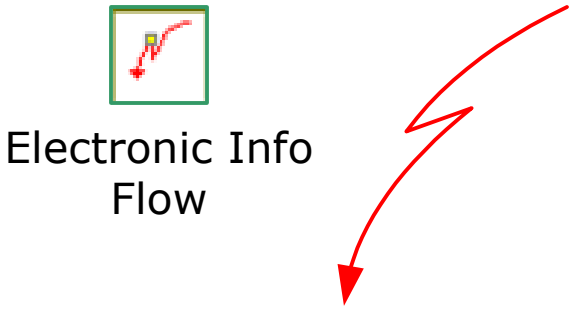
Note that some of the data shapes have been reduced to half height. This is because they contain variables that will be used for charting later and are automatically calculated. They are not considered critical for viewing directly and so some map space is being preserved.



Connecting Activities With Arrows



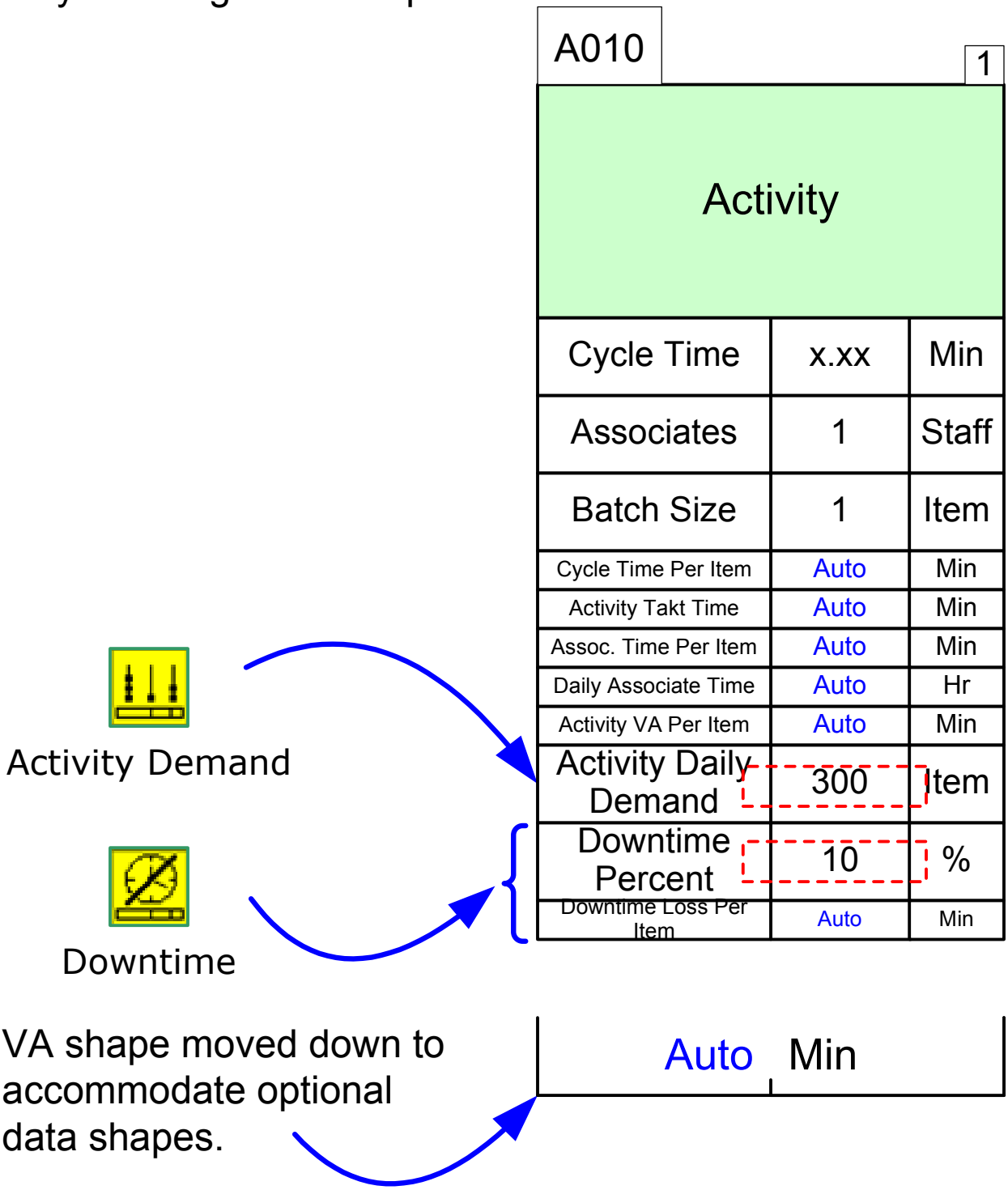
One of the arrows above should be used to connect activities together to show the sequence. A Right-Click provides additional formats to show the type of flow (PUSH in the above example).



The red jagged arrow is used to represent electronic information flow (for example, an email of a forecast from a customer).

Optional Activity Center Data Shapes

Optional data shapes that can be added to the bottom of the activity center are shown on the right. The shapes do NOT need to be added to all activities, only to those where they may have significant impact on the value stream.



Optional Activity Center Data Shapes (Cont'd.)

Activity Assc Time

Add this shape to denote the work time per associate for one cycle of this activity. The default value is the cycle time.

Activity Changeover

Add this shape to denote the time taken for changeovers each day.

Activity Scrap

Add this shape to denote percent of Items that are defective from this activity.

Activity Demand

Add this shape to denote a unique activity demand (due to servicing multiple value streams, perhaps).

Activity Demand %

Add this shape to denote the percent of demand going through this activity.

Activity Downtime

Add this shape to record unplanned downtime. Effect will be to reduce the 'Cycle Time Per Item'.

Optional Activity Center Data Shapes (Cont'd.)

Activity NVA

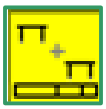
Add this shape to denote the NVA component within the 'Cycle Time' for an activity.

Activity OEE

OEE can be a general way to denote all the reasons that a loss in production occurs.

Activity Shortage

Add this shape to denote percent of times a shortage in components stops production at this activity.



Activity Stations

Add this shape to denote multiple stations. Effect will be to reduce the 'Cycle Time Per Item'. Note that the "Associates" value on the 'Activity Center' denotes the total number of associates at all 'Activity Stations'

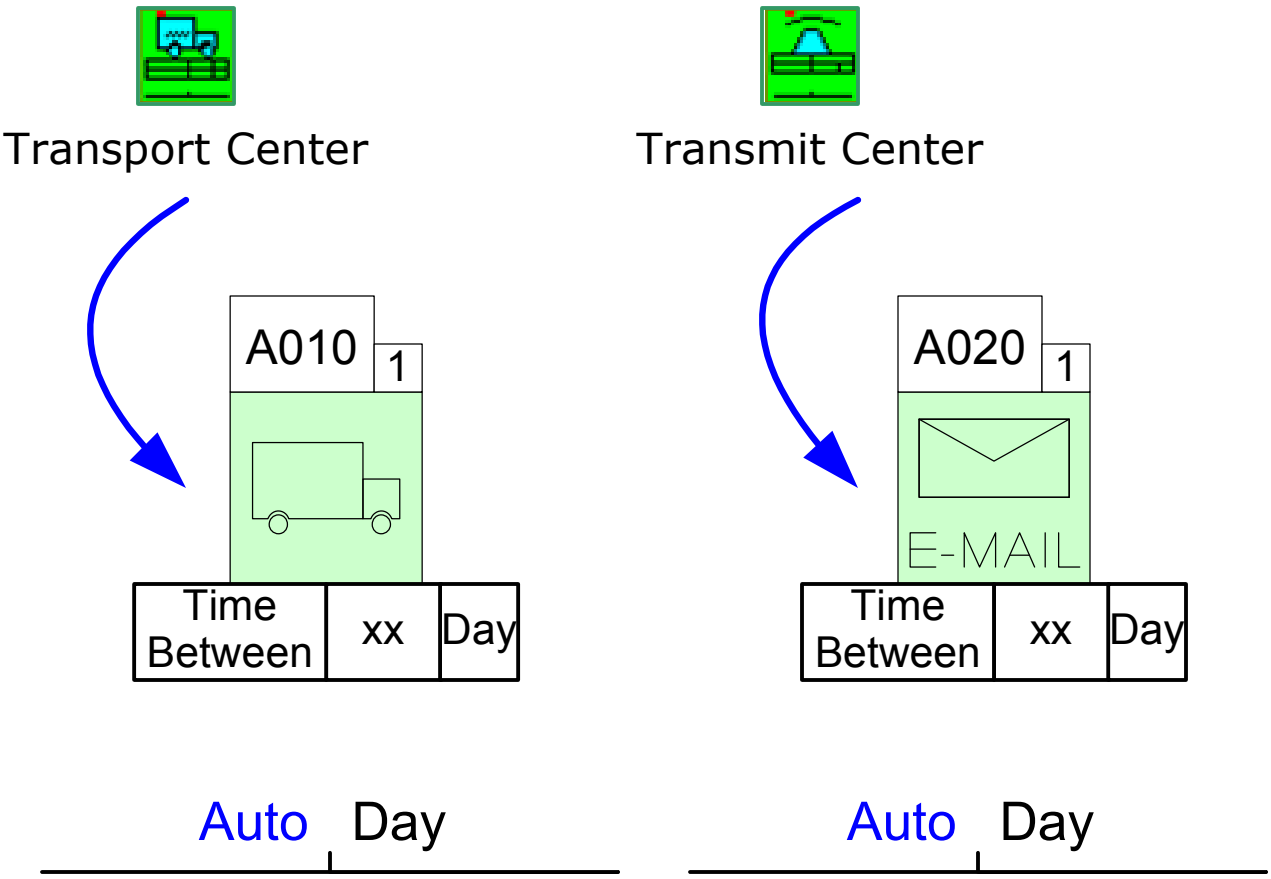
Activity Time

Add this shape to denote a unique activity available time (due to overtime, perhaps).

Inventory Rolling Defects

Add this shape to support rolling defect calculations (See the Rolling Defects Section).

Indicating Transportation or Transmit Method



Delete the ‘Path Locater’ and the NVA data blocks if the NVA time does not participate in the lead time calculation.

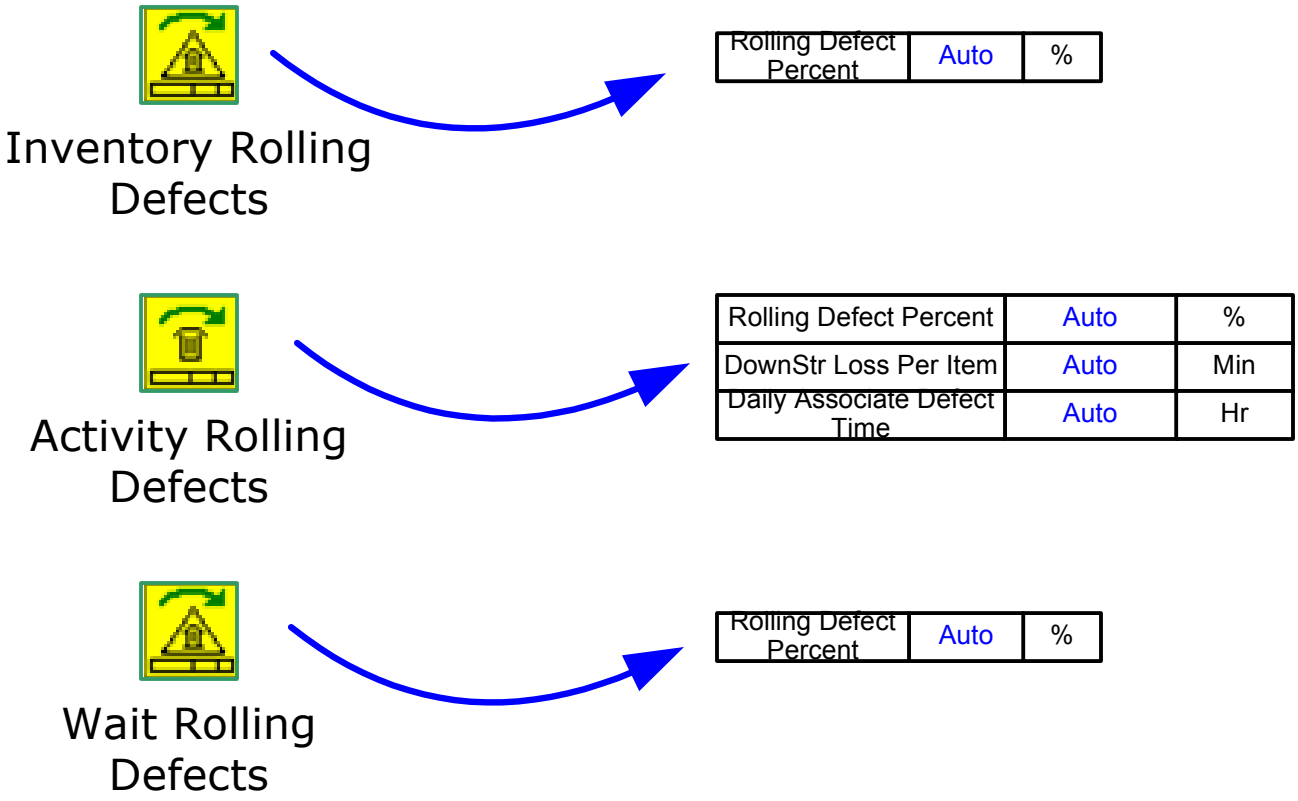
Right-click on the transport or transmit icons to select another type from the family.

Transport has a “Transport Time” add-on shape. Both the ‘Time Between’ and the ‘Transport Time’ are part of the NVA. If both are present than they are added together.

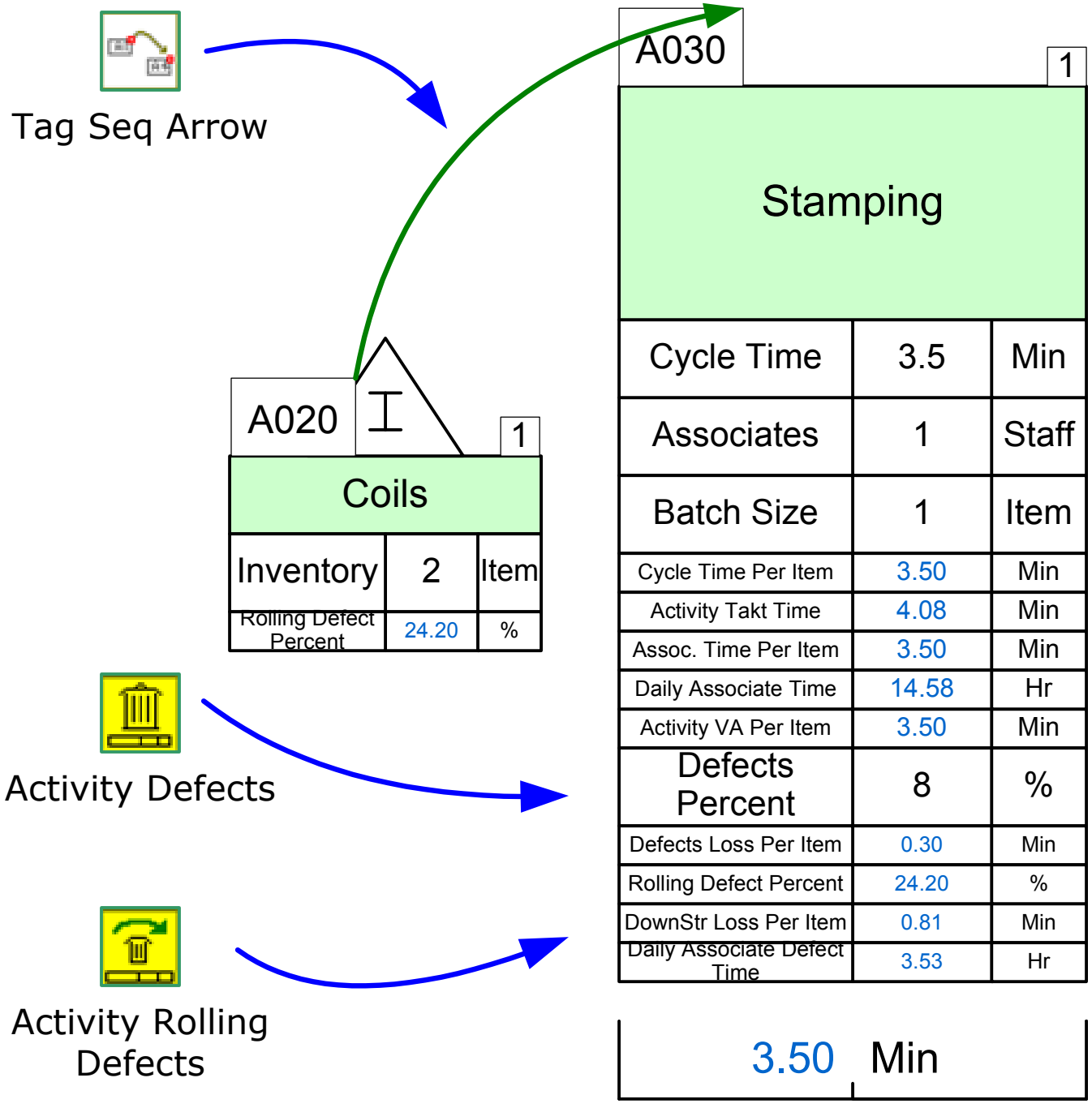
Rolling Defects

The rolling defects calculation is an optional add-on shape that shows the cumulative effect of defects downstream of the activity and how it impacts capacity at the activity. It must be used in conjunction with the ‘Activity Defect %’.

Every Green macro shape has its own ‘Rolling Defect’ add-on shape. In order for the map to calculate the rolling defect, every shape downstream of the activity must have the ‘Rolling Defect’ add-on. Also, all centers must be sequenced in order using the ‘Tag Seq Arrow’ (See the ‘Tag Sequence Arrow’ section in the “Analyzing with eVSM” chapter).



Note that with the ‘Rolling Defects’ add-on, all the data boxes will be automatically calculated.

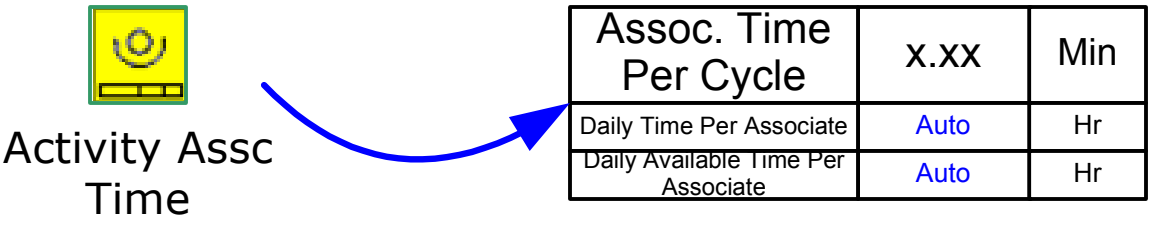


After defining the percentage of defects for each activity, the 'Rolling Defects Percent' is calculated based on the 'Defect Percent' for activities downstream. Adding a CT / TT chart to the map will visually show the losses due to defects (see following example).

Rolling Defects Cont'd

The CT / TT chart is an effective way to visually communicate how downstream losses due to defects can adversely effect capacity at upstream activities.

Activity Associate Time

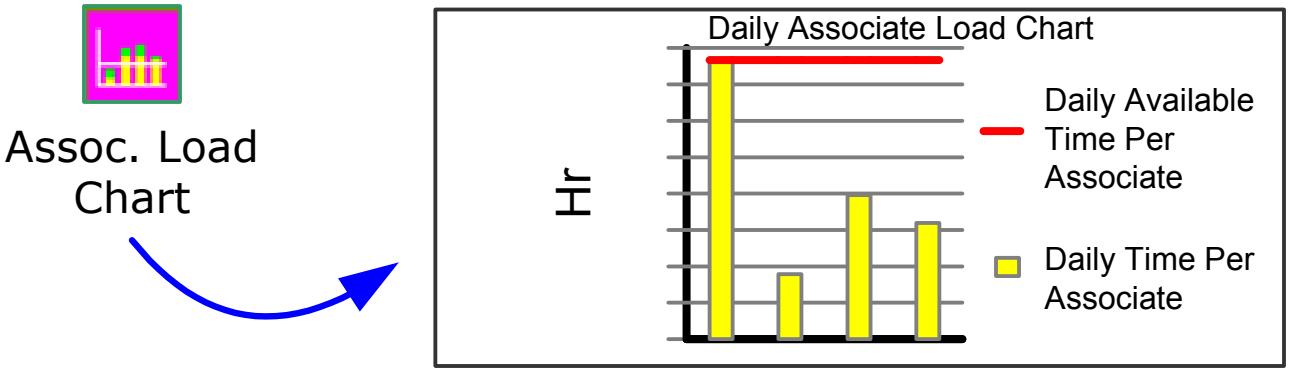


The ‘Activity Associate Time’ add-on can be used when an associate does not spend all their available working time on the activity.

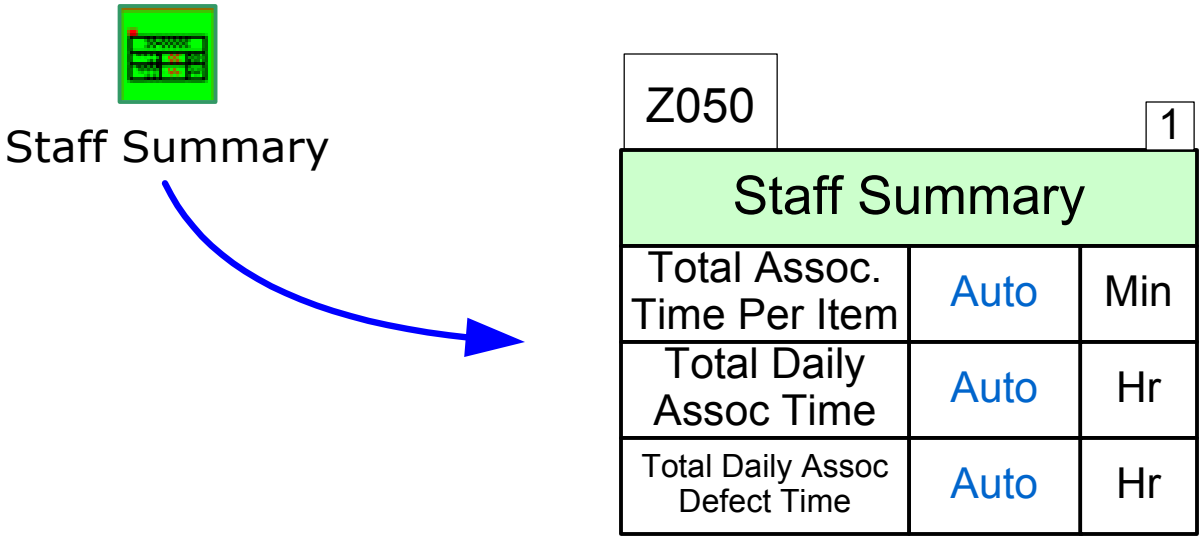
Enter the amount of time EACH associate spends on the activity for ONE cycle in the ‘Assoc. Time Per Cycle’ field. Note that this must be less than the cycle time. The ‘Daily Time Per Associate’ field is the total amount of time each associate spends working on the activity in one working day (and is automatically calculated).

The Staff Summary (following section) summarizes the data from this and the ‘Rolling Defects’ add on.

The ‘Assoc. Load Chart’ presents the data in a bar graph. Note that the current capability does not provide a chart that properly represents available time of associates working on multiple activities.



Staff Summary



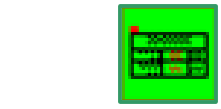
The Staff Summary gives totals from the ‘Activity Assc Time’ and the ‘Activity Rolling Defects’ add on shapes.

‘Total Assoc. Time Per Item’ gives the total time spent by all associates in making an item (not necessarily the total cycle times, if an associate spent less than ‘Cycle Time’ on an activity).

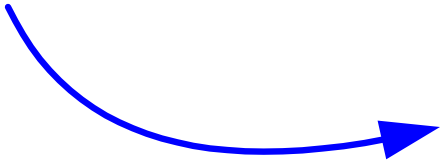
‘Total Daily Assoc Time’ is the above multiplied by ‘Customer Daily Demand’.

And ‘Total Daily Assoc Defect Time’ is tied to the “Rolling Defects’ add-on and sums up all the time lost by associates due to defects in a day.

Time Summary



Time Summary



Z040 1

Time Summary		
Total Lead Time	Auto	Day
Total Value Added	Auto	Min
Value Added Percent	Auto	%
Takt Time	Auto	Min

Drag & drop to the bottom right of the page and just to the right of the VA/NVA timeline.

Calculating the “Auto” Variables

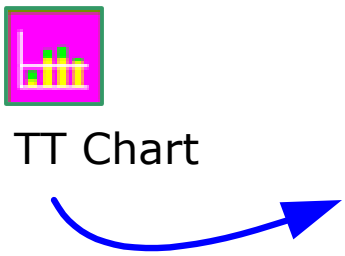
Once you have entered data in all the input fields, make sure that all the light green shapes are tagged (See the ‘Tagging Shapes’ section earlier in this chapter).

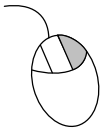
Click the “Q” button in the toolbar to execute the built-in equations. This will create values in all the “Auto” fields.

Quick eVSM

Whenever data is changed on the map, this button should be clicked to update the map.

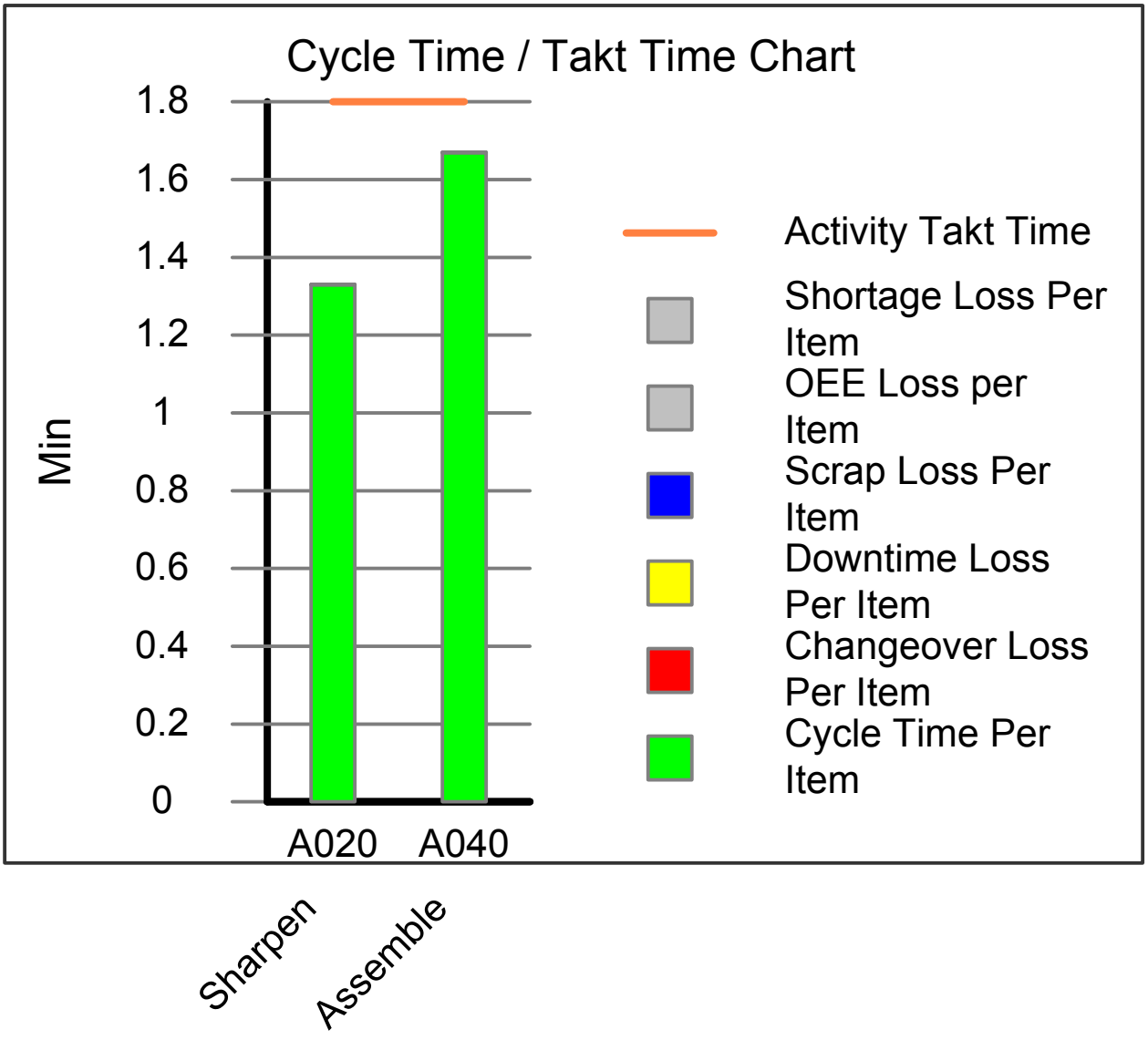
Cycle Time / Takt Time Chart



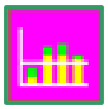


Edit Chart DataPlot ChartCreate Spreadsheet

Drag & Drop the chart on the page and then Right-Click for the ‘Plot Chart’ option. It can be filtered by path number by gluing on a ‘Path Filter’ shape to the bottom right of the chart shape.



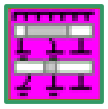
VA Time / Takt Time Chart



VA / TT Chart

This is very similar to the Cycle Time / Takt Time Chart. Use it if you have applied the “Activity NVA” add-on to any of your ‘Activity Centers’. It splits the cycle time into its VA and NVA components.

NVA Timeline Chart



NVA Timeline Chart

This chart plots the NVA times in a horizontal bar chart and “to scale”. It can be filtered by Path Number.

Quick Mfg Info

Quick Mfg Info

This shape contains an image that lays out the content of the Quick Mfg stencil on a single page and provides annotation on the equations that are involved in calculating all the “Auto” fields.

Drag out the shape for Preview or Printing.

Quick eVSM Summary

Quick eVSM stencils provide a standard, easy, and rapid means of creating, analyzing, and visualizing the map.

The Quick Mfg stencil in eVSM V5 provides a highly productive way of working with plant-level value stream maps. The eVSM group plans to create further “Quick” stencils in respond to customer demand. If you have such a request please email us at support@evsm.com.

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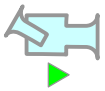
3. Quick Services

What is Quick eVSM ?

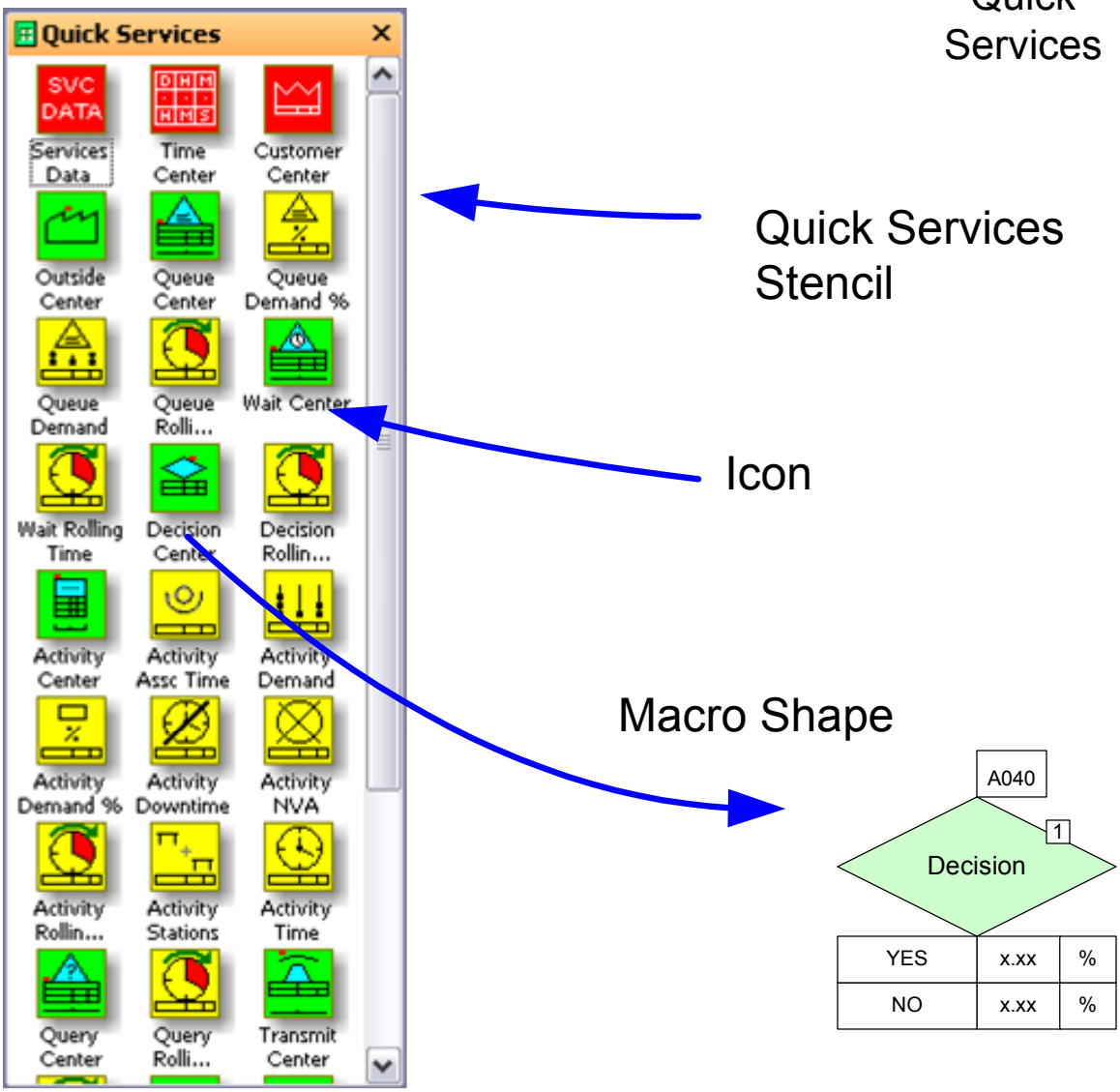
Quick eVSM denotes stencils that are built on eVSM to simplify, standardize, and speed up the creation of value stream maps in an application area. The ‘Quick Services’ stencil in eVSM has been built for VSMs at a product level.

Help Movie

Short movies about using eVSM are available at www.evsm.com/help.



Quick Services



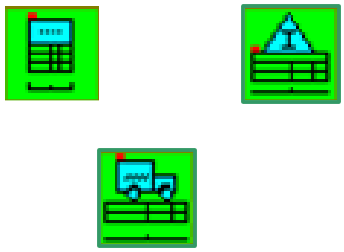
Can Quick eVSM stencils be used on existing maps ?

You can only use the Quick eVSM stencils for completely NEW maps. The stencils rely on a standard set of names, units, and eqn's that old maps will not be compliant to.

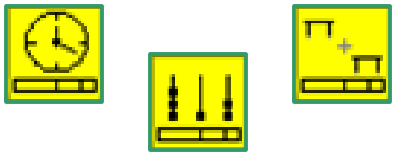
Quick eVSM Stencils : Icon Colors

The icons in the Quick eVSM stencils (such as the Quick Services stencil) have the following color conventions:

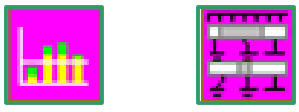
Red Quick eVSM Icons need to be placed on EVERY map and should be the first items placed on the map.



Green Quick eVSM Icons represent INDEPENDENT macro shapes. Blue shapes in the icon denote 'Right Mouse Button' options that can change the shape visual (e.g. from truck to ship).

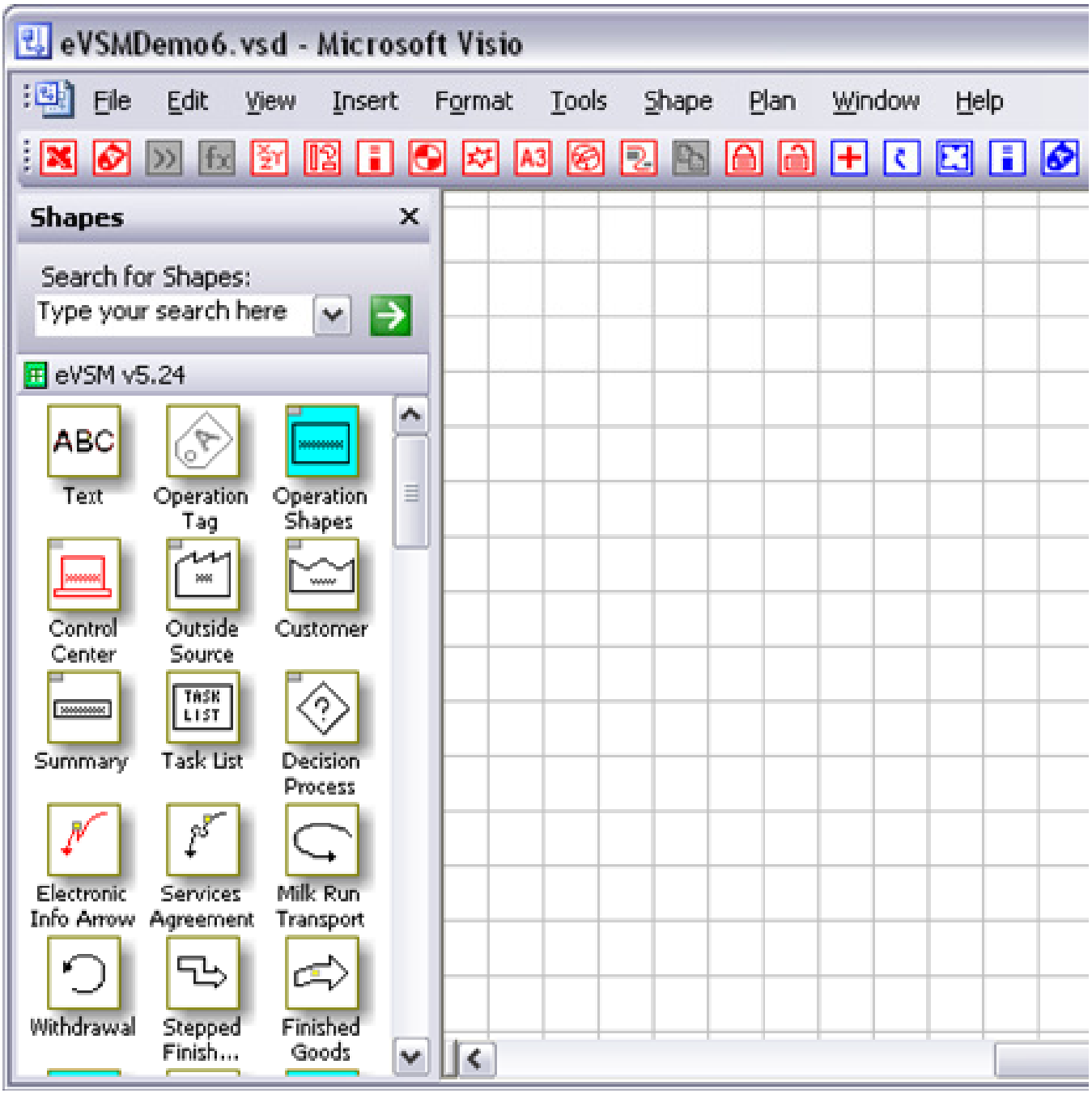


Yellow Quick eVSM Icons represent optional add-ons to the macro shapes in the Green Icons. These icons are named to correspond to the Green icons to which they can be added.

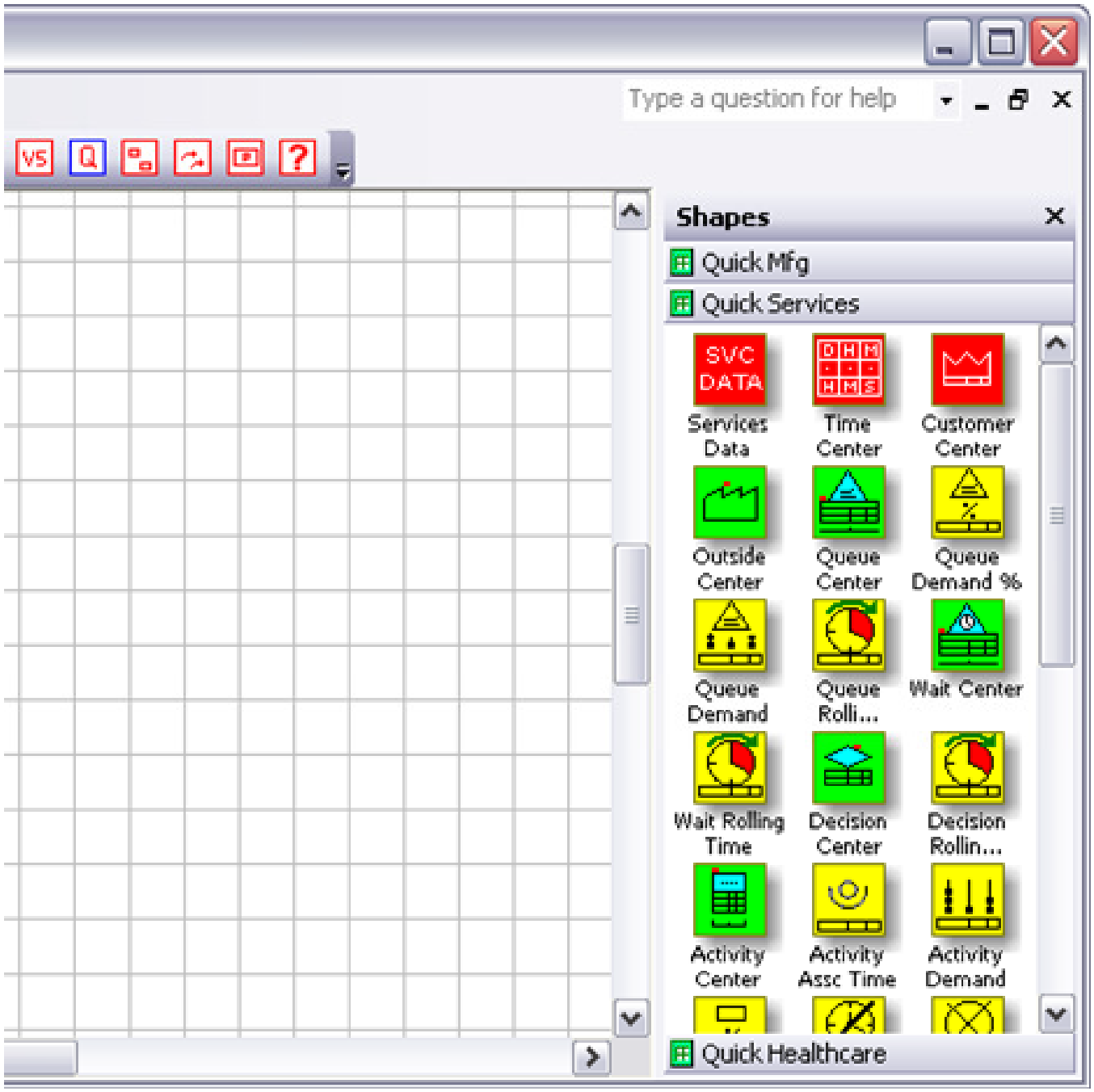


Magenta Quick HC Icons represent pre-configured charts that can be dropped on the page and plotted.

Recommended Layout for Quick eVSM



Note that the main eVSM stencil (typically named eVSM vX.XX) is on the left side of the screen. We will refer to this as the "Main Stencil". It's important that this stencil is never closed because closing it disables eVSM toolbar functions.



Any Quick eVSM stencils (such as Quick Services) are docked on the right of the screen. We will refer to such stencils as the "Quick Stencil". Click and drag the Quick Stencil header bar to move it to this docked position.

Icon Help

Quick eVSM Icons all have associated help text that is visible if you hold your mouse over the appropriate icon in the stencil.

Drag and Drop Behavior

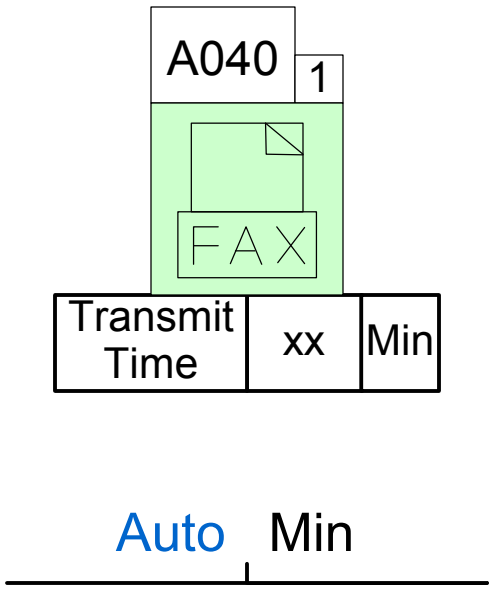
When you drag and drop an icon on the page it creates either a single shape or a macro shape (a set of connected Shapes).

Red, green, and magenta icons are independent and do not need to be attached to other items when they are being dropped on the page.

Yellow icons represent add-on shapes. They need to be positioned and attached to their parent shape as part of the drag & drop process.

Moving Shapes On The Map

When the macro shapes corresponding to the green icons are dragged onto the page, they include an ‘Anchor Shape’ that is shaded in light green. To move the macro shape as a whole, this anchor shape should be moved. In this example, the fax icon is the anchor shape.



Zooming In and Out

- **CTRL-SHIFT-Drag** Select region (Zoom into the selected region).

Page Resizing

When you run out of space on the drawing page, DO NOT resize eVSM shapes. Instead just make the drawing page bigger. An easy way to do this in Visio is to hold down the CTRL key and move the cursor to any edge of the page. The cursor will turn into a double-headed arrow. Just grab the edge and pull to the required size. Avoid the page corners when re-sizing the page.

Snap To Grid

Shapes are sized to fit the grid. Snap shapes to grid locations for easy alignment.

Resizing Shapes

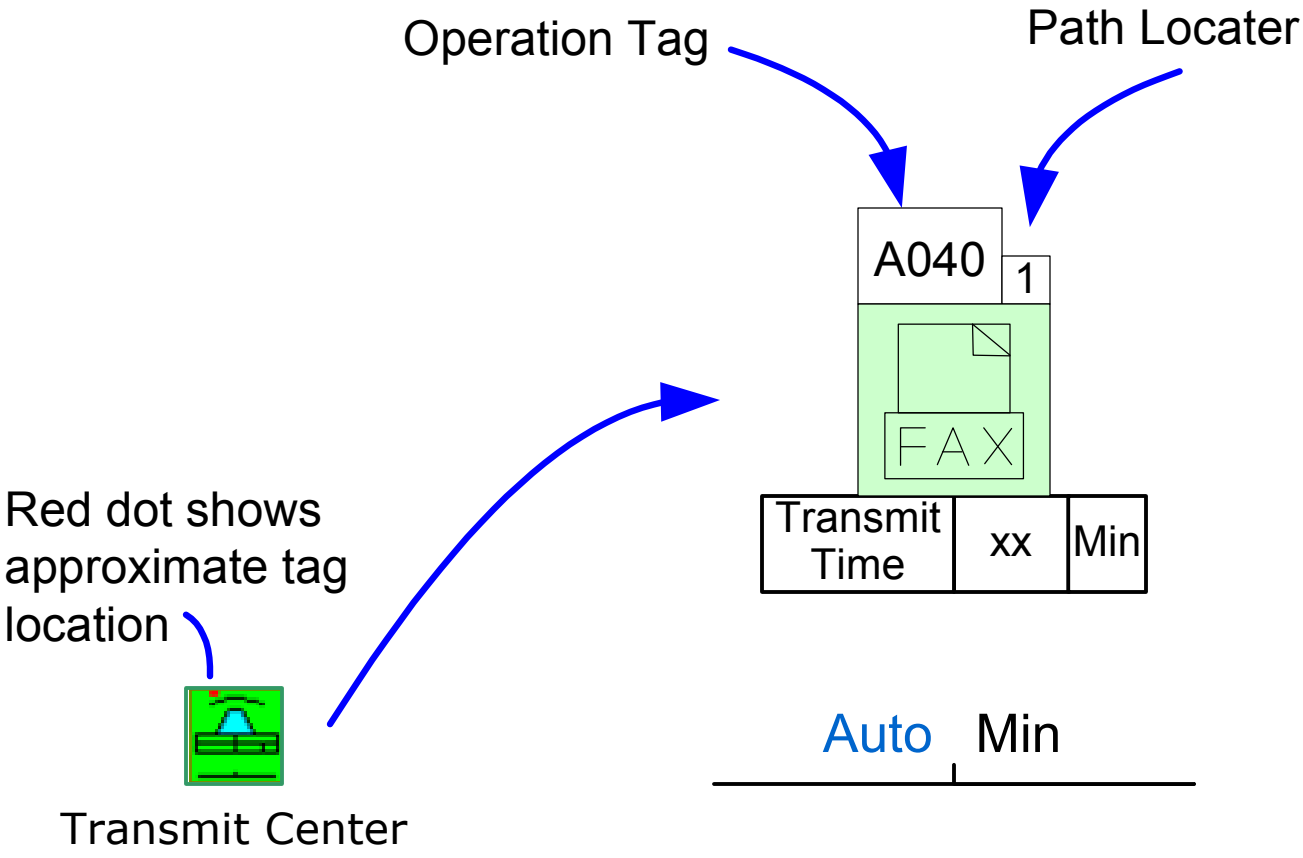
Avoid resizing shapes whenever possible. Shapes are designed to fit together and resizing a shape will make “fit” difficult and create extra work.

Text Editing

Double-click a shape to edit its text.

Tagged and Path Located Shapes

The green icons in the stencil have shapes that are pre-tagged with an “Operation Tag” and pre-assigned to Path 1 via the “Path Locater”.



When the shape is dragged onto the map its operation tag will “auto-number” to create a unique tag ID. You can double-click and change the ID but it MUST be unique on the map and it MUST be an alphabetic character followed by 3 numerals.

The charts in eVSM are plotted in tag alphabetic sequence order.

Data Shapes

Quick eVSM data shapes have 3 types of entries:

Shapes with xx in the center field indicate values that MUST be entered.

Cycle Time	x.xx	Min

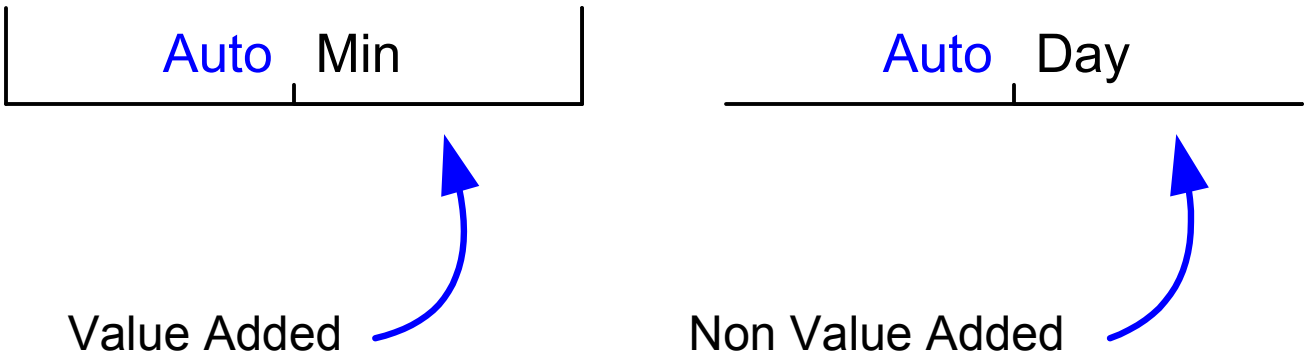
Some shapes have default values already entered. Override these when necessary.

Batch Size	1	Item

Any shapes with ‘Auto’ fields should be left alone. They will be automatically calculated.

Cycle Time Per Doc	Auto	Min
Activity Takt Time	Auto	Min

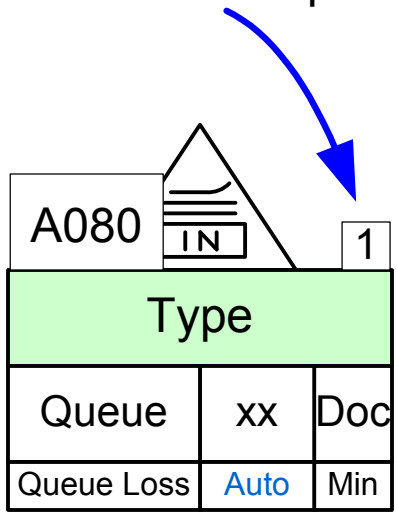
Most data shapes have a Name, Value, Unit composition. The exception are the ‘Value Added’ and ‘Non Value Added’ shapes where the name is implied.



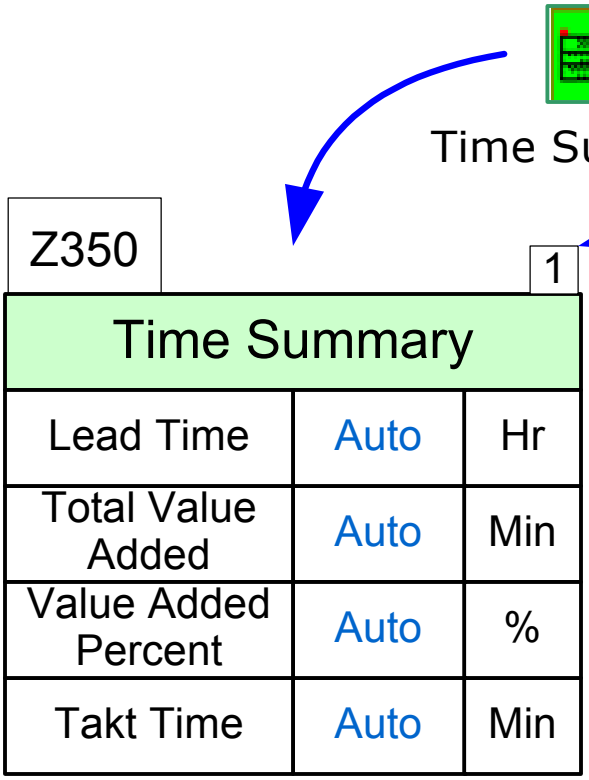
Path Locater shapes

Every macro shape that can have a Value Added (VA) or Non Value Added (NVA) time also has a ‘Path Locater’ shape that that defaults to Path 1.

This variable is used to decide if the VA or NVA time component contributes to the ‘Lead Time’ and if the VA component contributes to the ‘Total Value Added’ in the “Time Summary”. If a component is not intended to contribute to the totals its path locater shape should be deleted or changed to a different path number.



Auto Min

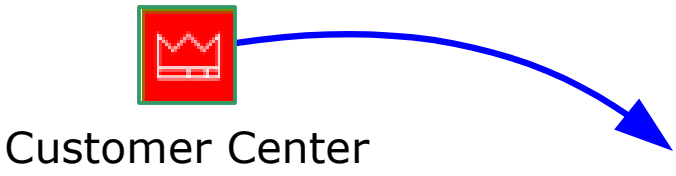


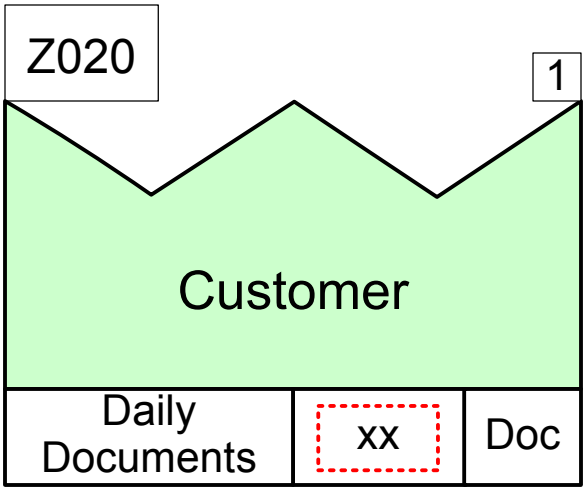
The ‘Path Locator’ shape filters the summation to the path number (1 in this case).

Your First Map With Quick Services Stencil

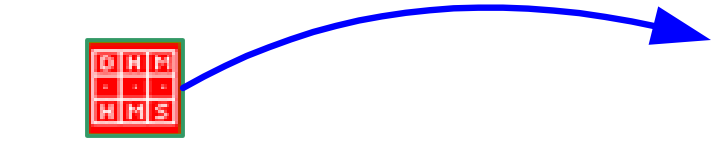
Red icons are MANDATORY and must be placed on the map first before drawing a new map.

Place the ‘Services Data’ icon on the bottom left of the page.





Drop the ‘Customer Center’ on the page, name the customer, and enter the “Daily Documents” value. Note that multiple customers can exist on a map.

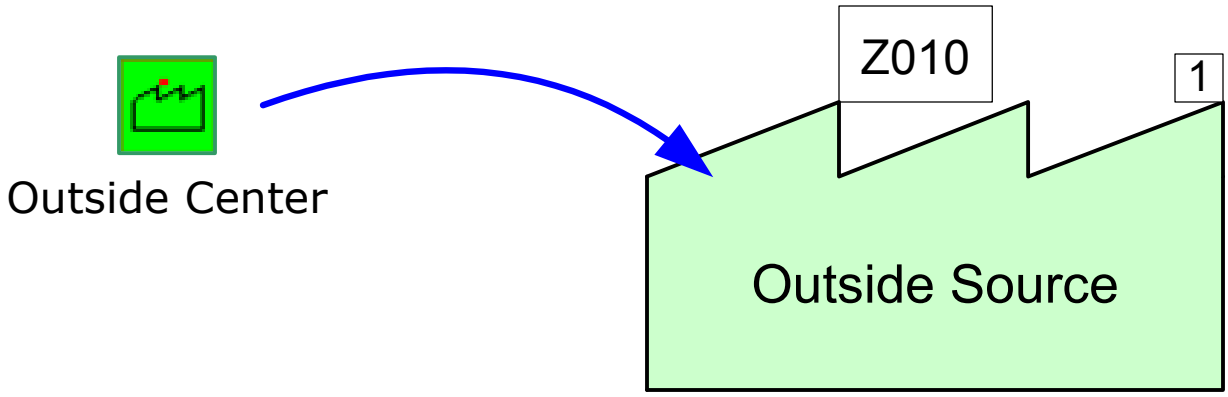


Day	Hr	Min
xx	60	60
Hr	Min	Sec

Drop the ‘Time Center’ on the page and enter the number of work hours per day for the map as a whole. Work hours should exclude planned breaks (let’s say 7 hours per day).

Outside Center

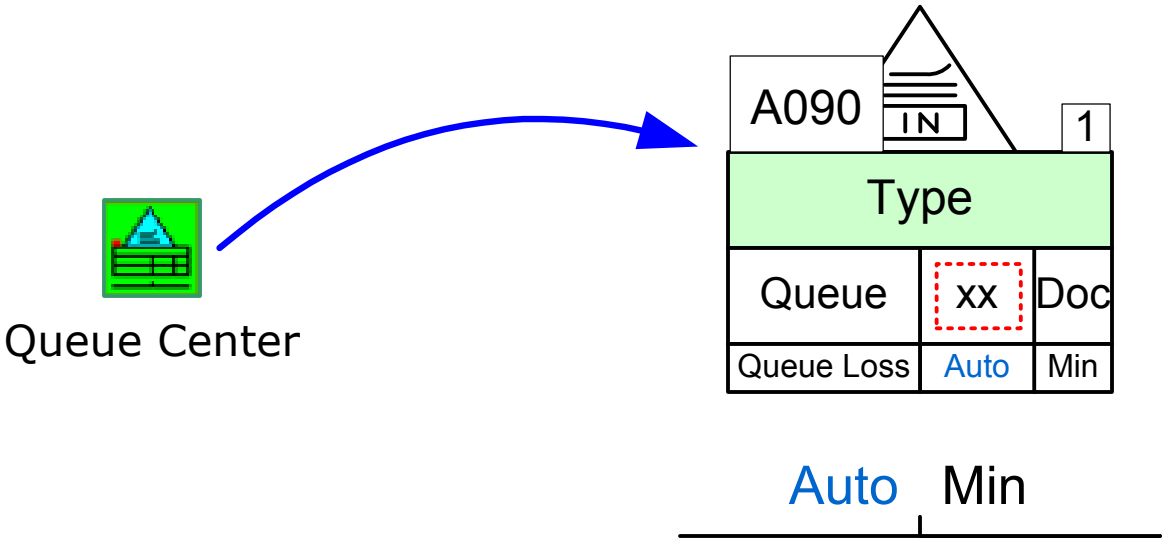
Drag out the ‘Outside Center’ and name it. It is used to represent suppliers, contractors, vendors, distributers, etc.



If an outside source needs to be included in the calculations, then use the Activity Center macro shape instead.

Queue Center

Used to represent the number of docs in the in-tray or waiting ahead of the next activity.



Optional Queue Center Add-ons

Queue Demand %

Demand Percent	x.xx	%

Optional calculation to show demand as a percentage of total demand going through Queue Center.

Queue Demand

Queue Daily Demand	xx	Doc

Optional calculation to show volume as an absolute value going through Queue Center.

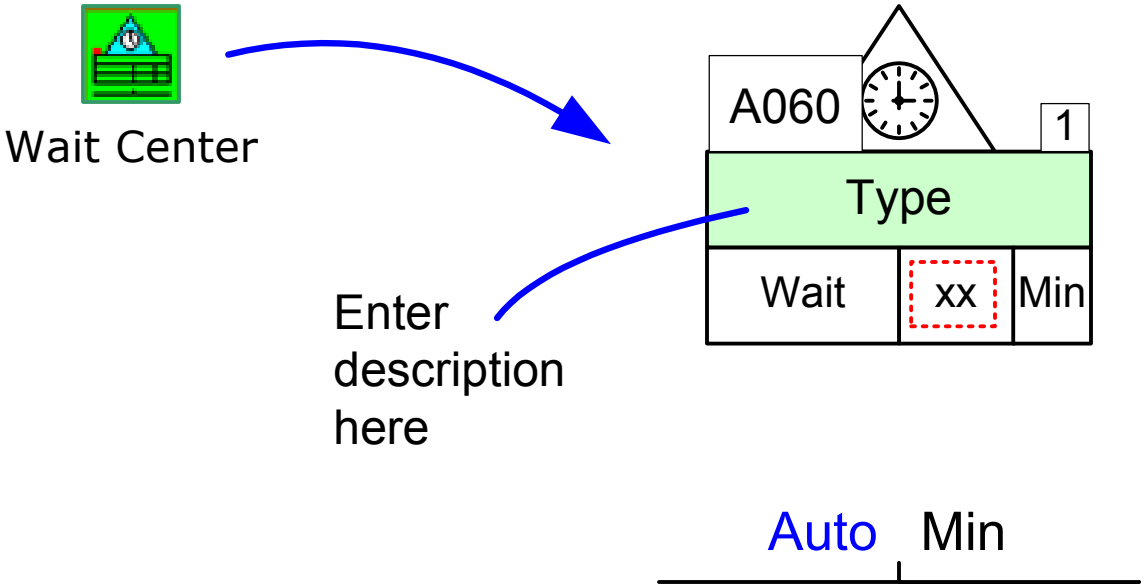
Queue Rolling Time

Rolling Time	Auto	Min

Optional calculation to show total time taken to reach this point in the value stream. Note that all preceding activities must also have a rolling calculation add-on and the “Tag Seq Arrow” used to specify the sequence.

Wait Center

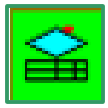
Used to represent the wait time ahead of an activity or a decision.



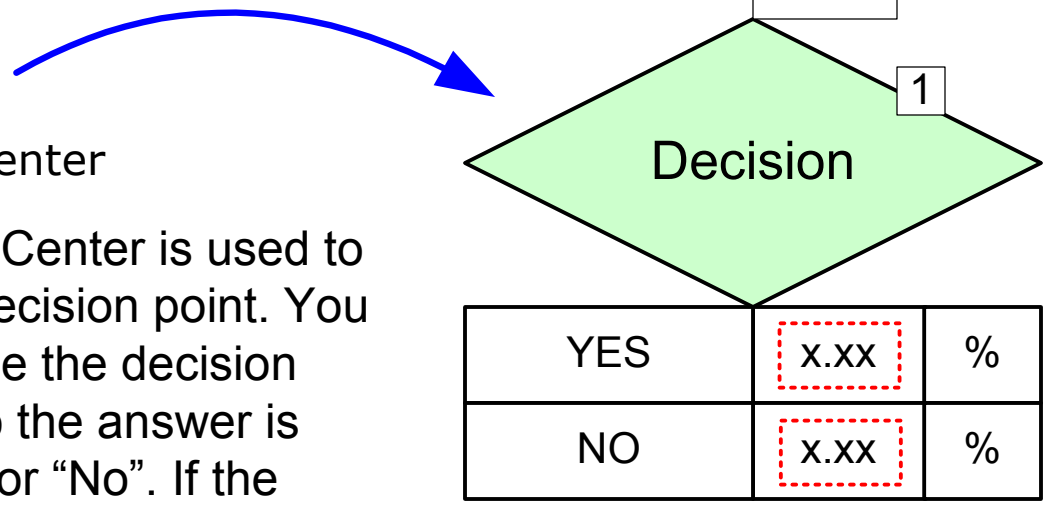
Optional Wait Center Add-on

Optional calculation to show total time taken to reach this point in the value stream. Note that all preceding activities must also have a rolling calculation add-on and the “Tag Seq Arrow” used to specify the sequence.

Decision Center



Decision Center



The Decision Center is used to represent a decision point. You need to phrase the decision description so the answer is always “Yes” or “No”. If the decision takes a significant amount of time, then the time value should be included in the preceding activity.

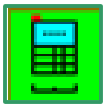
Optional Decision Center Add-on

Decision Rolling Time

Rolling Time	Auto	Min

Optional calculation to show total time taken to reach this point in the value stream. Note that all preceding activities must also have a rolling calculation add-on and the “Tag Seq Arrow” used to specify the sequence.

Activity Center



Activity Center

Used to represent actual activities (eg. Enter order, Schedule, Review, etc.) in the value stream.

Align the Activity Center to the grid and with any preceding macro shapes so that the VA/ NVA shapes at the bottom form a contiguous time line.

Enter the description and the mandatory Cycle Time.

A010		1
Activity		
Cycle Time	x.xx	Min
Associates	1	Staff
Batch Size	1	Doc
Cycle Time Per Doc	Auto	Min
Activity Takt Time	Auto	Min
Assoc. Time Per Doc	Auto	Min
Daily Associate Time	Auto	Hr
Activity VA Per Doc	Auto	Min

Auto	Min

Optional Activity Center Add-ons

Activity Assc Time

Assoc. Time Per Cycle	x.xx	Min
Daily Time Per Associate	Auto	Hr
Daily Available Time Per Associate	Auto	Hr

Add this macro to denote the work time per associate for one cycle of this activity.

Optional Activity Center Add-ons (Cont'd)

Activity Defects

Defects Percent	x.xx	%
Defects Loss Per Doc	Auto	Min

Activity Center Add-On : Add this shape to denote percent of units that are defective from this activity, if significant

Activity Demand

Activity Daily Demand	xx	Doc

Add this macro to denote a unique activity demand (due to servicing multiple value streams, perhaps).

Activity Demand %

Demand Percent	x.xx	%

Add this macro to denote the percent of demand going through this activity.

Activity Downtime

Downtime Percent	x.xx	%
Downtime Loss Per Doc	Auto	Min

Add this macro to record unplanned downtime. Effect will be to reduce the 'Cycle Time Per Item'.

Optional Activity Center Add-ons (Cont'd)

Activity NVA

Activity NVA	xx	Min
Activity NVA Per Doc	Auto	Min

Auto Min

Add this macro to denote the NVA component within the Cycle Time for an activity, if significant.

Activity Rolling Time

Rolling Time	Auto	Min

Optional calculation to show the total time taken to reach this point in the value stream. Note that all preceding activities must also have a rolling calculation add-on and the "Tag Seq Arrow" used to specify the sequence.

Activity Stations

Stations	1	Stn

Add this macro to denote multiple stations that each have this capability. Effect will be to reduce the Cycle Time Per Unit.

Activity Time

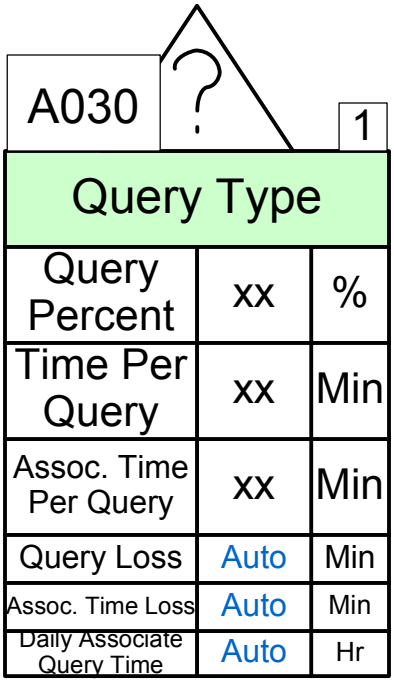
Activity Time Per Day	x.xx	Hr

Add this shape to denote a unique activity available time (due to overtime, part-time work, etc).

Query Center

Query Center

The Query Center allows you to model any significant loss of lead time or associate time due to incorrect, incomplete, or defective documents.



Auto Min

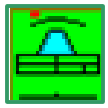
Optional Query Center Add-on

Query Rolling Time

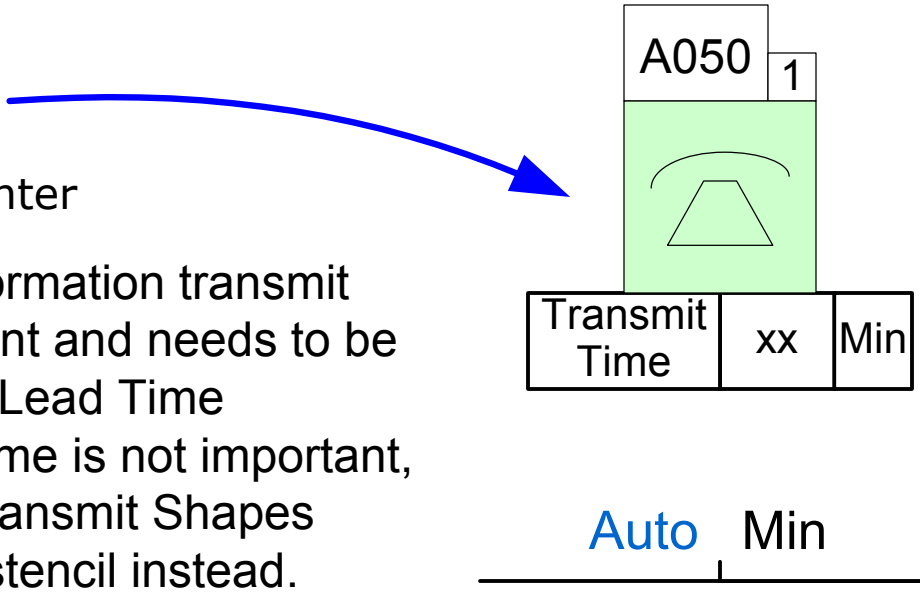
Rolling Time	Auto	Min

Optional calculation to show total time taken to reach this point in the value stream. Note that all preceding activities must also have a rolling calculation add-on and the “Tag Seq Arrow” used to specify the sequence.

Transmit Center



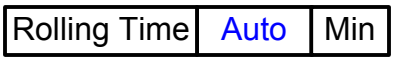
Transmit Center



Used when information transmit time is significant and needs to be included in the Lead Time calculation. If time is not important, then use the Transmit Shapes from the main stencil instead.

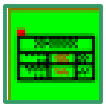
Optional Transmit Center Add-on

Transmit Rolling Time



Optional calculation to show total time taken to reach this point in the value stream. Note that all preceding activities must also have a rolling calculation add-on and the “Tag Seq Arrow” used to specify the sequence.

Time Summary



Time Summary

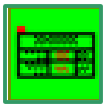
Drag & drop to the bottom right of the page and just to the right of the VA/NVA timeline.

Note that the Path Locator (1) is used to filter the summation for ‘Lead Time’ and ‘Total Value Added’ time.

Z350 1

Time Summary		
Lead Time	Auto	Hr
Total Value Added	Auto	Min
Value Added Percent	Auto	%
Takt Time	Auto	Min

Staff Summary



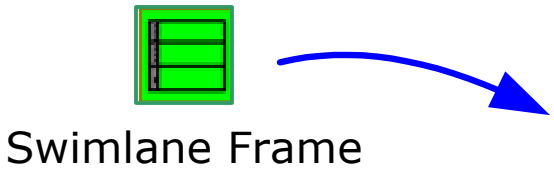
Staff Summary

Drag & drop anywhere on the map to show the staff totals.

Z240 1

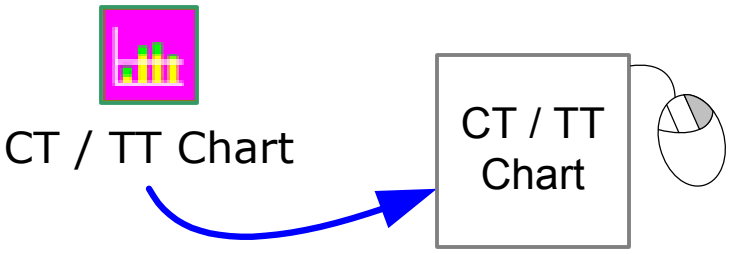
Staff Summary		
Total Assoc. Time Per Doc	Auto	Min
Total Daily Assoc Time	Auto	Hr

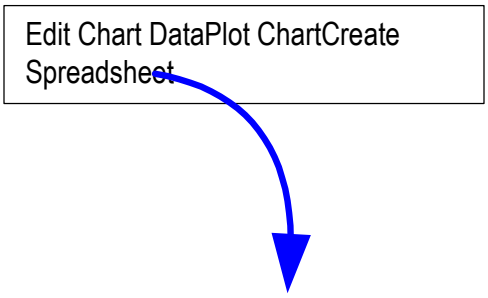
Swimlane Frame



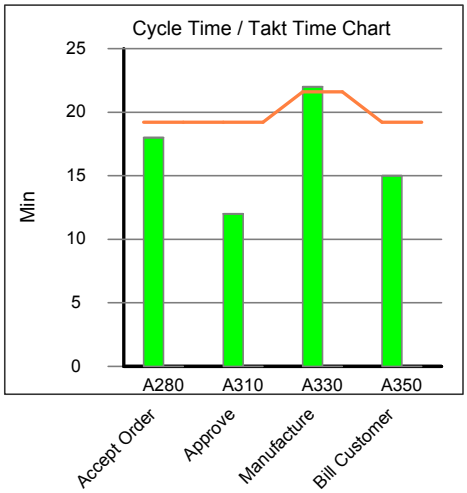
Drag & Drop on the page, and name the swimlanes. Use right-mouse menus to add/delete rows and to re-size. For details on drawing value stream maps in swimlanes, see the eVSM Table function help.

Cycle Time / Takt Time Chart

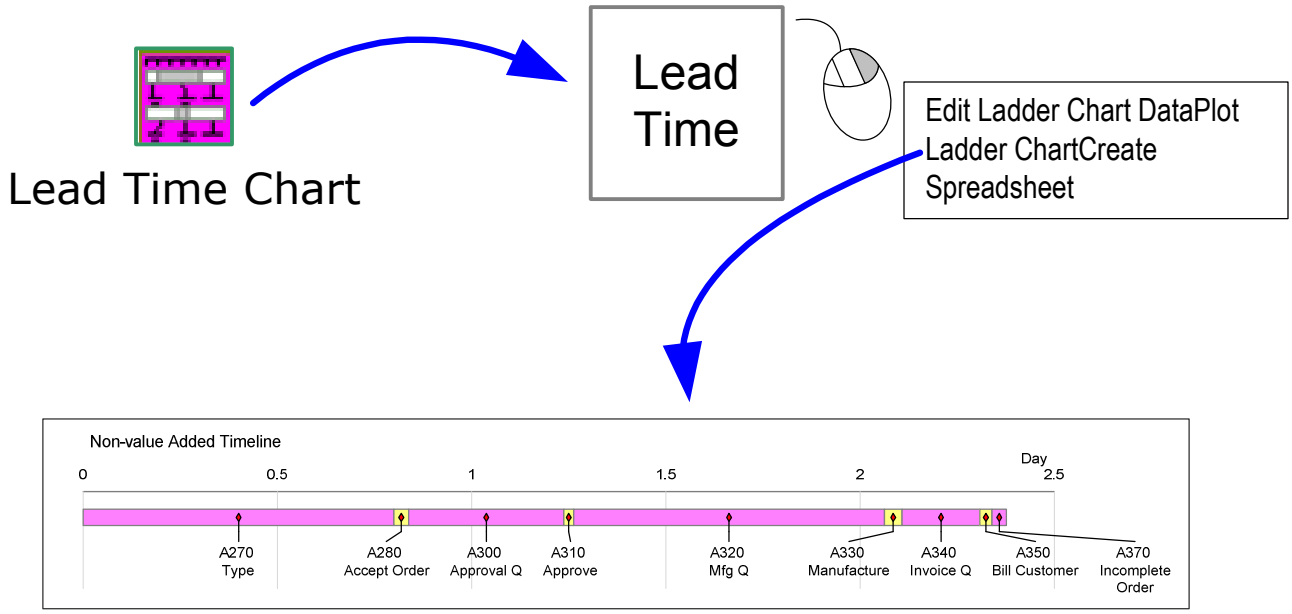




Drag & Drop the chart on the page and then Right-Click for the 'Plot Chart' option. It can be filtered by path number by gluing on a 'Path Filter' shape to the bottom right of the chart shape

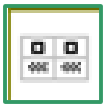


Lead Time Chart



Drag & Drop the chart on the page and then Right-Click for the ‘Plot Chart’ option. It can be filtered by path number by gluing on a ‘Path Filter’ shape to the bottom right of the chart shape.

Key Creator



Key Creator

Adding this Shape to a map will give you a summary of all the icons used on the map.

Variables Key Creator

Var Key Creator

Adding this Shape to a map will give you a summary of all the variables used on the map.

Quick Services Info

Quick Svc Info

This shape contains an image that lays out the content of the Quick HC stencil on a single page and provides annotation on the equations that are involved in calculating all the “Auto” fields.

Drag out the shape for Preview or Printing.

This area intentionally left blank

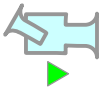
4. Quick Healthcare

What is Quick eVSM ?

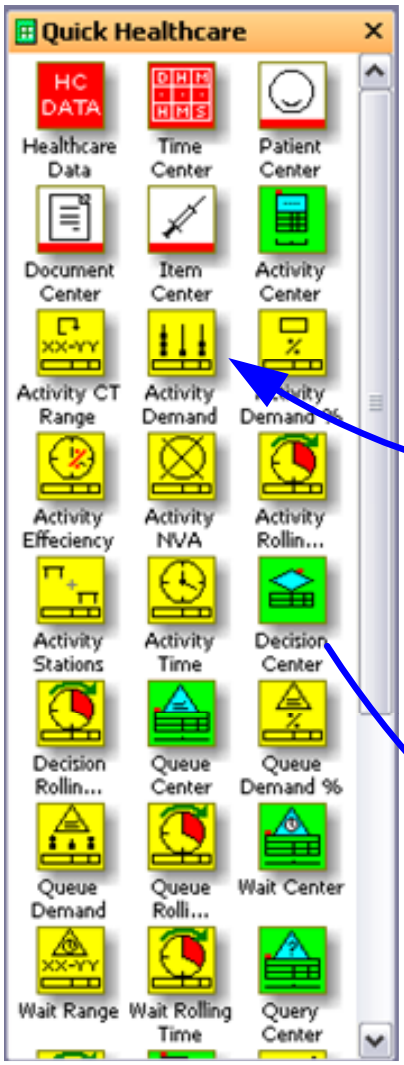
Quick xx denotes Quick eVSM stencils that are built on eVSM to simplify, standardize, and speed up creation of value stream maps in an application area. This chapter talks about the Quick Healthcare (Quick HC) stencil.

Help Movie

Short movies about using eVSM are available at www.evsm.com/help.



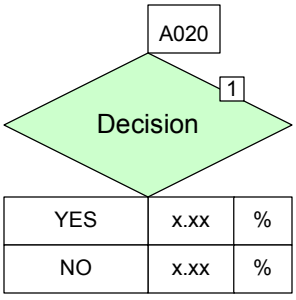
Quick HC



Quick Healthcare Stencil

Icon

Macro Shape



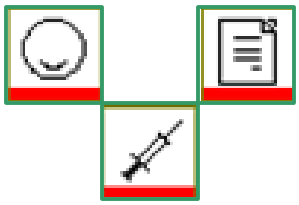
Can Quick eVSM stencils be used on existing maps ?

You can only use the Quick eVSM stencils for completely NEW maps. The stencils rely on a standard set of names, units, and eqn's that old maps will not be compliant to.

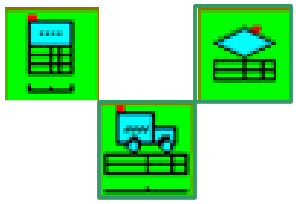
Quick eVSM Stencils : Icon Colors

The icons in the Quick HC stencil have the following color conventions:

Both Red Quick HC Icons need to be placed on EVERY map and should be the first items placed on the map.

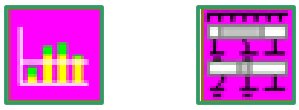


One of the Red Bar Icons must be placed on EVERY map. It represents demand and is assigned the unit PID (for Patient, Item, or Document) which must not be changed.



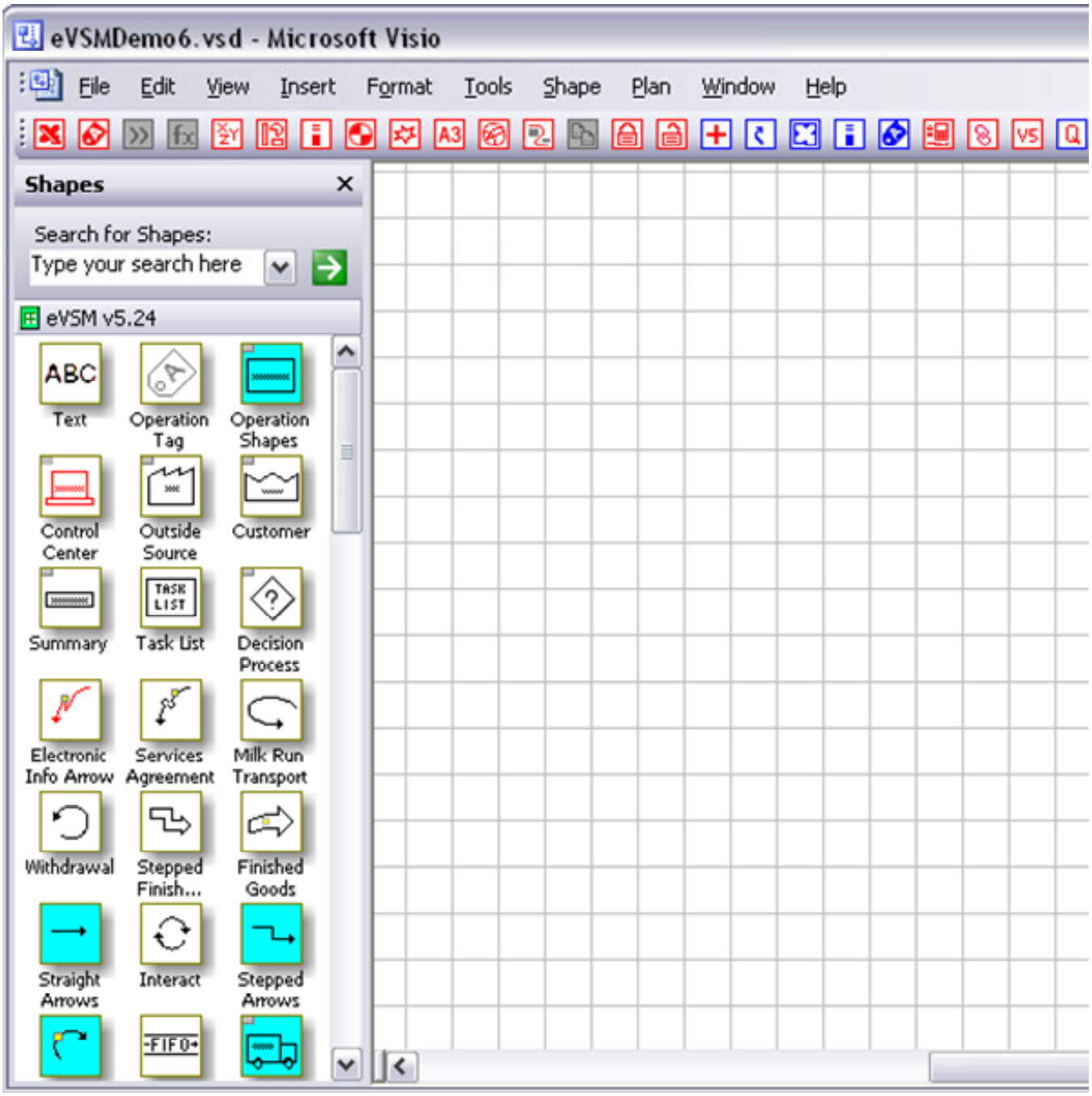
Green Quick HC Icons represent INDEPENDENT macro shapes.

Yellow Quick HC Icons represent optional add-ons to the macro shapes in the Green Icons.

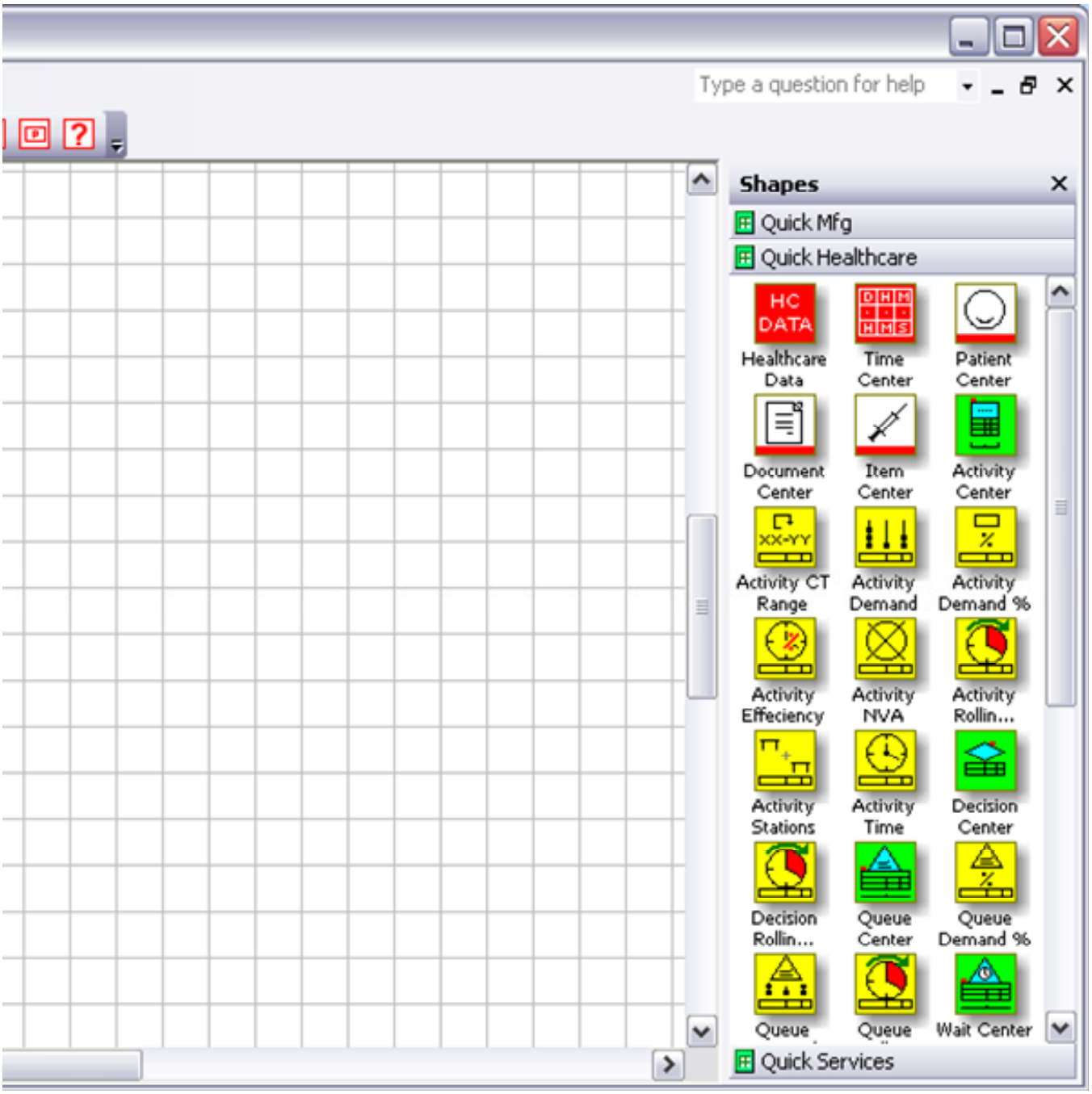


Magenta Quick HC Icons represent pre-configured charts that can be dropped on the page and plotted.

Recommended Layout for Quick eVSM



Note that the main eVSM stencil (typically named eVSM vX.XX) is on the left of the screen. We will refer to this as the "Main Stencil". It's important that this stencil is never closed because closing it disables eVSM toolbar functions.



Any Quick eVSM stencils (such as Quick Healthcare) are docked on the right of the screen. We will refer to such stencils as the "Quick Stencil". Click and drag the Quick Stencil header bar to move it to this docked position.

Icon Help

Quick eVSM Icons all have associated help text that is visible if you hold your mouse over the appropriate icon in the stencil.

Drag and Drop Behavior

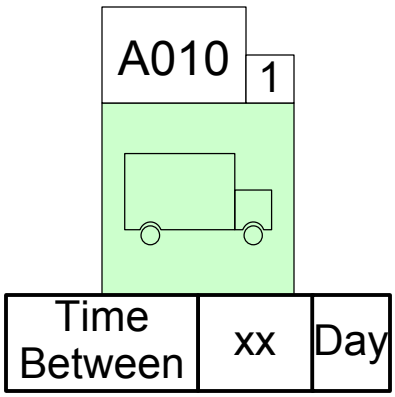
When you drag and drop an icon on the page it creates either a single shape or a macro shape (a set of connected Shapes).

Red, green, and magenta icons are independent and do not need to be attached to other items when they are being dropped on the page.

Yellow icons represent add-on shapes. They need to be positioned, attached, and glued to their parent shape as part of the drag & drop process.

Moving Shapes On The Map

When the macro shapes corresponding to the green icons are dragged onto the page, they include an ‘Anchor Shape’ that is shaded in light green. To move the macro shape as a whole, this anchor shape should be moved. In the diagram, the truck is the anchor shape.



Zooming In and Out

- **CTRL-SHIFT-Drag** Select region (Zoom into the selected region)

Page Resizing

When you run out of space on the drawing page, DO NOT resize eVSM shapes. Instead just make the drawing page bigger. An easy way to do this in Visio is to hold down the CTRL key and move the cursor to any edge of the page. The cursor will turn into a double-headed arrow. Just grab the edge and pull to required size. Avoid the page corners when re-sizing the page.

Snap To Grid

Shapes are designed to be grid-sized. Snap shapes to grid locations for easy alignment.

Resizing Shapes

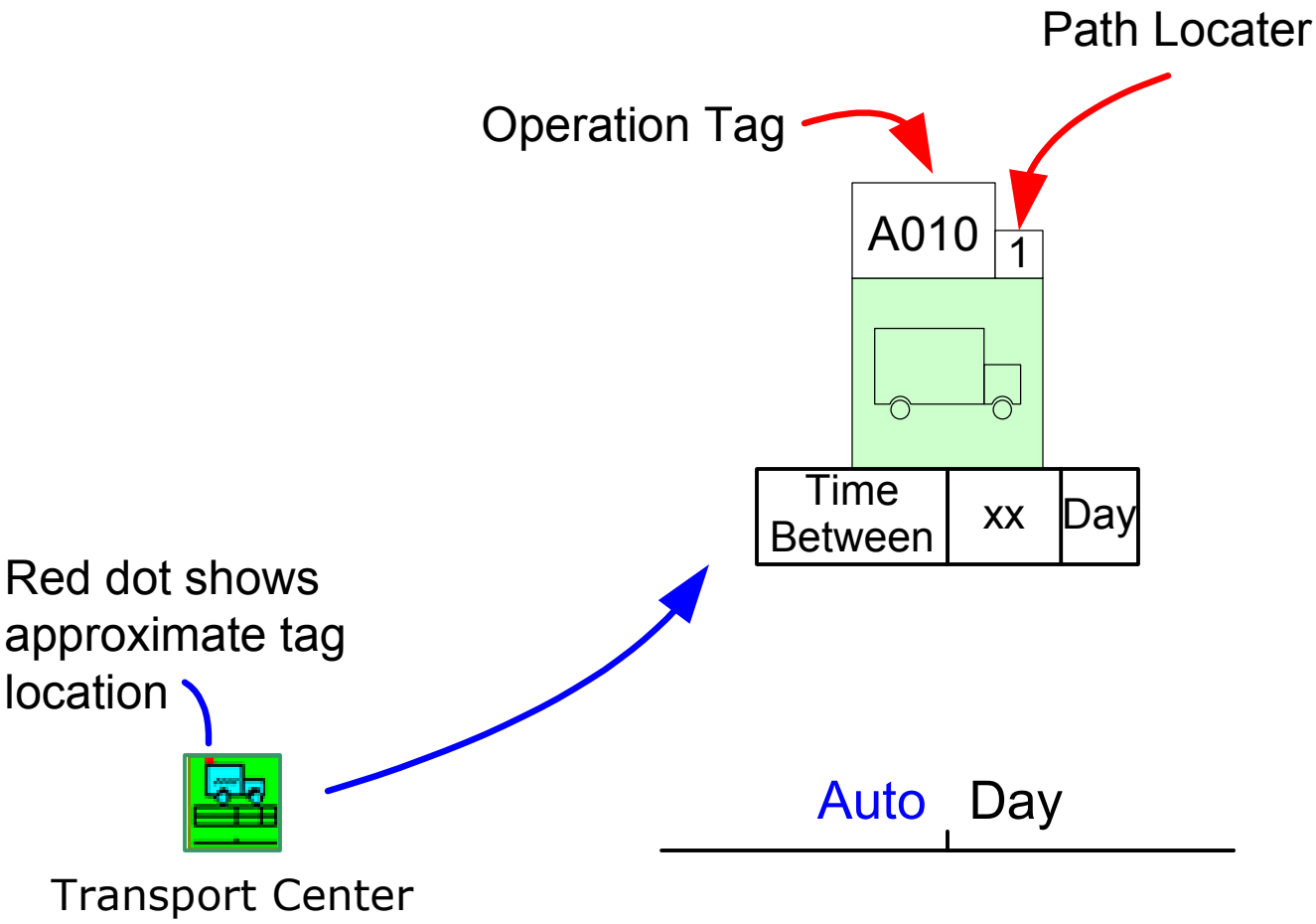
Avoid resizing shapes whenever possible. Shapes are designed to fit together and resizing a shape will make “fit” difficult and create extra work. You may also run into the risk of ungluing shapes.

Text Editing

Double-click a shape to edit its text.

Tagged and Path Located Shapes

The green icons in the stencil have shapes that are pre-tagged via an “Operation Tag” and pre-assigned to Path 1 via the “Path Locater”.



When the shape is dragged onto the map its operation tag will “auto-number” to create a unique tag ID. You can double-click and change the ID but it MUST be unique on the map and it MUST be an alphabetic character followed by 3 numerals.

The charts in Quick HC are plotted in tag alphabetic sequence order.

Data Shapes

Quick HC data shapes have 3 types of entries:

Shapes with xx in the center field indicate values that MUST be entered.

Cycle Time	x.xx	Min

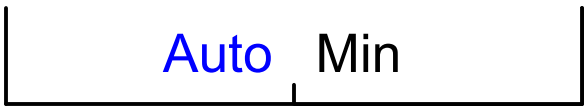
Some shapes have default values already entered. Override these when necessary.

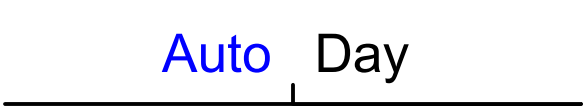
Group Size	1	PID

Any shapes with ‘Auto’ fields should be left alone. They will be automatically calculated.

Cycle Time Per PID	Auto	Min
Activity Takt Time	Auto	Min

Most data shapes have a Name, Value, Unit composition. The exception are the ‘Value Added’ and ‘Non Value Added’ shapes where the name is implied.

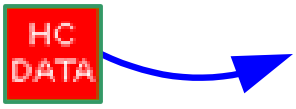




Value Added

Non Value Added

Drawing Your First Map With Quick Healthcare Stencil



Healthcare Data

Red icons are MANDATORY on the map and must be the first things that are dragged out onto a new map.

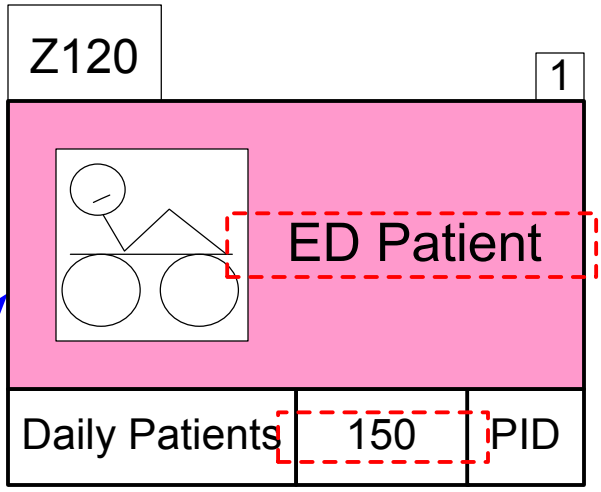
Place the ‘Name Unit Eqns’ on the bottom left of the page.

Time Center

Day	Hr	Min
15	60	60
Hr	Min	Sec

Place the ‘Time Center’ anywhere on the page and enter the number of work hours per day for the map as a whole. Work hours should exclude planned breaks.

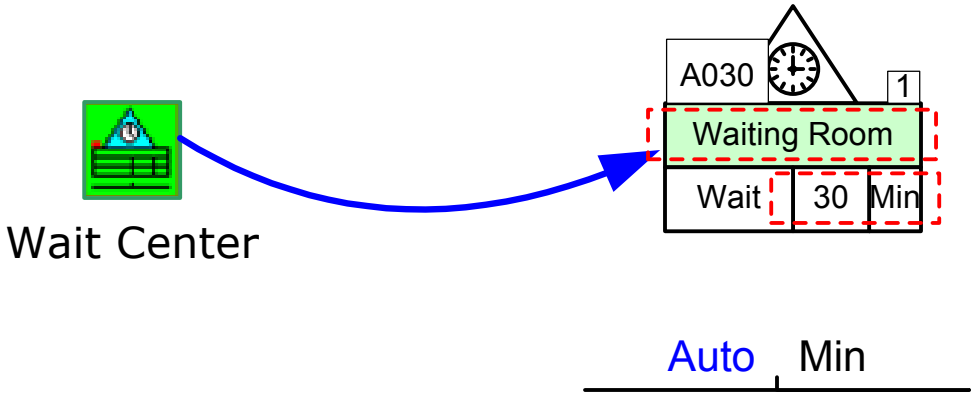
Patient Center



Place the ‘Patient (or Document or Item) Center’ anywhere on the page and enter the “Daily XX” value (let’s say 200 PID per day). This represents demand for Takt Time calculations.

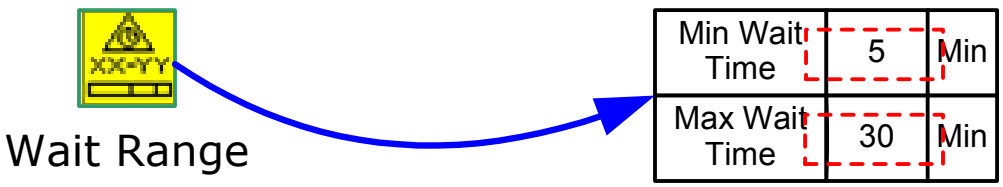
Wait Center

Typically most maps start with a wait for the Patient, Item, or Document (PID) being processed. So drag out the ‘Wait Center’ and enter the wait type and time as shown. The flat line at the bottom represents the ‘Non Value Added’ time associated with the wait. You can also change the time units when appropriate: just double click on the units, a dialog pops up, select the unit you want and double click it. Use the ‘Wait Center’ anytime there is a wait between activities.



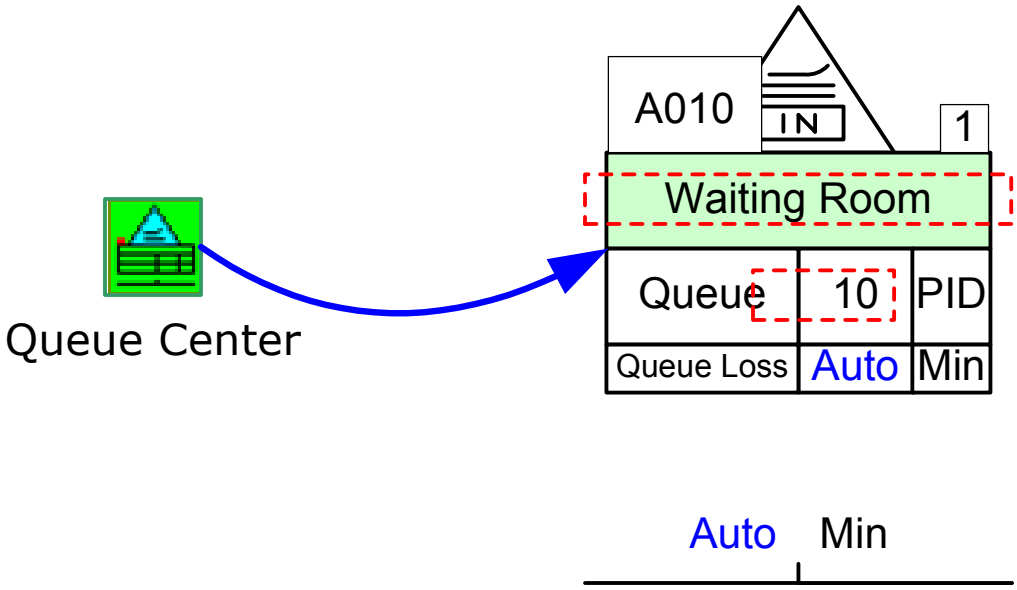
Optional Wait Shapes

The Wait Range is an optional data shape that can be connected to the bottom of the Wait center and that can be used to indicate the range of wait times. However, only the ‘Wait’ variable is used for calculating lead time.



Queue Center

An alternative way to calculate waiting time is through the Queue Center shape. You can directly observe the number of PID's in a Queue (eg., the number of people in a waiting room or the number of documents in the IN tray), and enter the value (you must NOT change the PID units though). The 'Non Value Added' time will automatically be calculated as 'Queue Loss' (queue/demand).



Optional Queue Shapes

Queue Demand

Add this shape to denote a unique queue demand (due to servicing multiple value streams, perhaps).

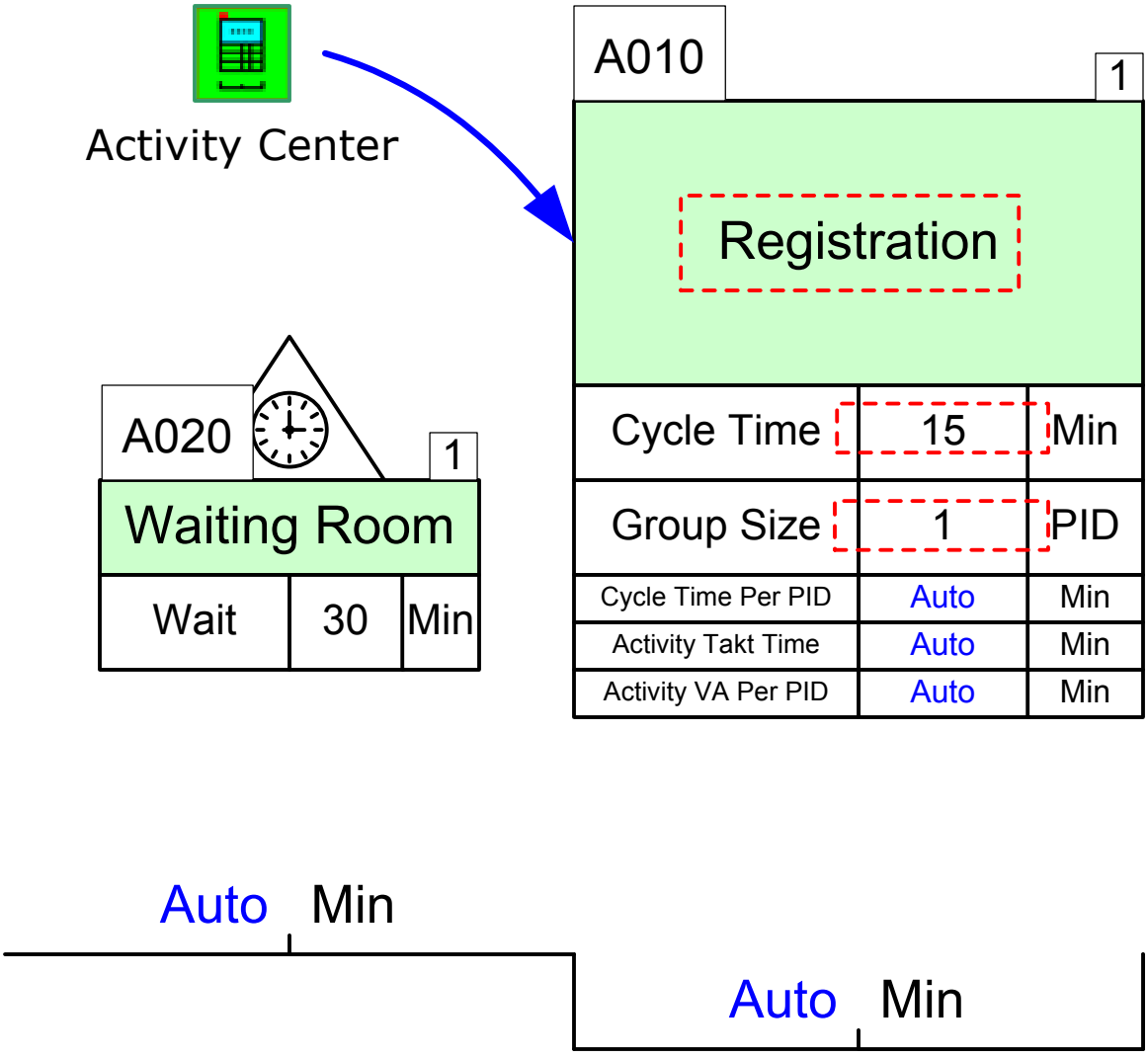
Queue Demand %

Add this shape to denote the demand percent going through this queue.

Adding an Activity

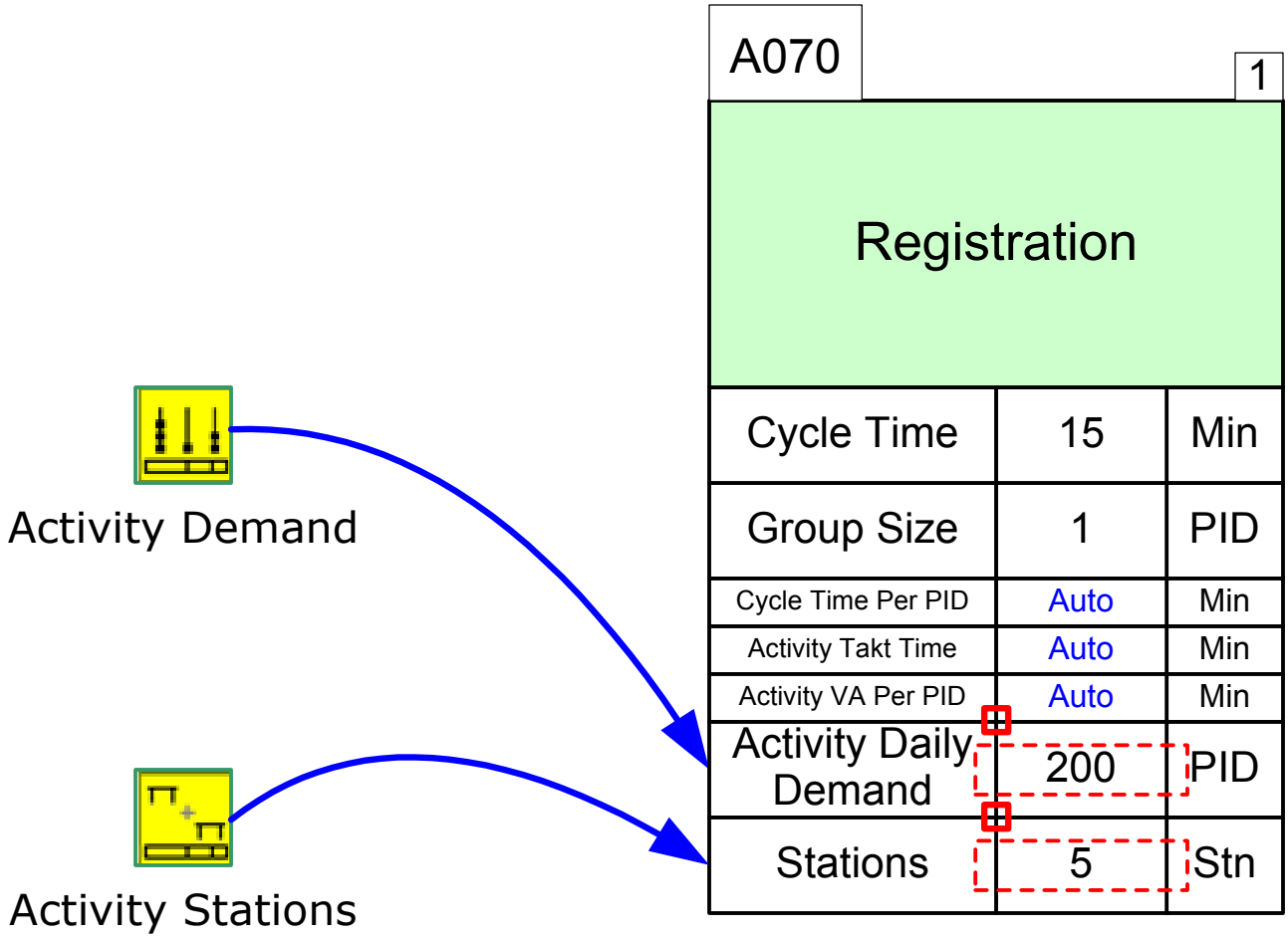
Next drag out the ‘Activity Center’ and position it as shown. Type in the data indicated (‘Group Size’ is the number of patients that can be processed in one cycle).

Note that some of the data shapes have been reduced to half height. This is because they contain variables that will be used for calculation or charting later and are automatically calculated. They are not considered critical for viewing directly so some map space is being preserved.



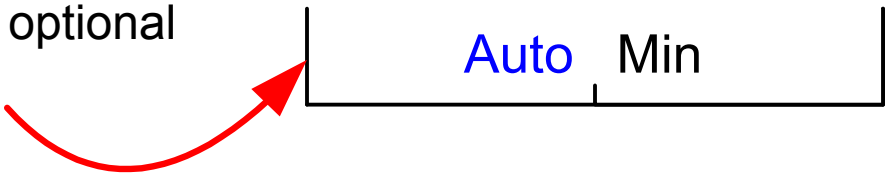
Optional Activity Center Shapes

Optional data shapes that can be added to the bottom of the activity center are shown below. The shapes do NOT need to be added to all activities, only to those where they may have significant impact on the value stream.



(Denotes multiple stations performing this activity. Will reduce CT.)

VA shape moved down to accommodate optional data shapes.



Optional Activity Center Data Shapes (Cont'd.)

Activity CT Range

Add this shape to denote the range of cycle times.

Activity Demand

Add this shape to denote a unique activity demand (due to servicing multiple value streams, perhaps).

Activity Demand %

Add this shape to denote the percent of demand going through this activity.

Activity Efficiency

Add this shape to represent loss of capacity due to reasons such as interruptions, searches, etc.

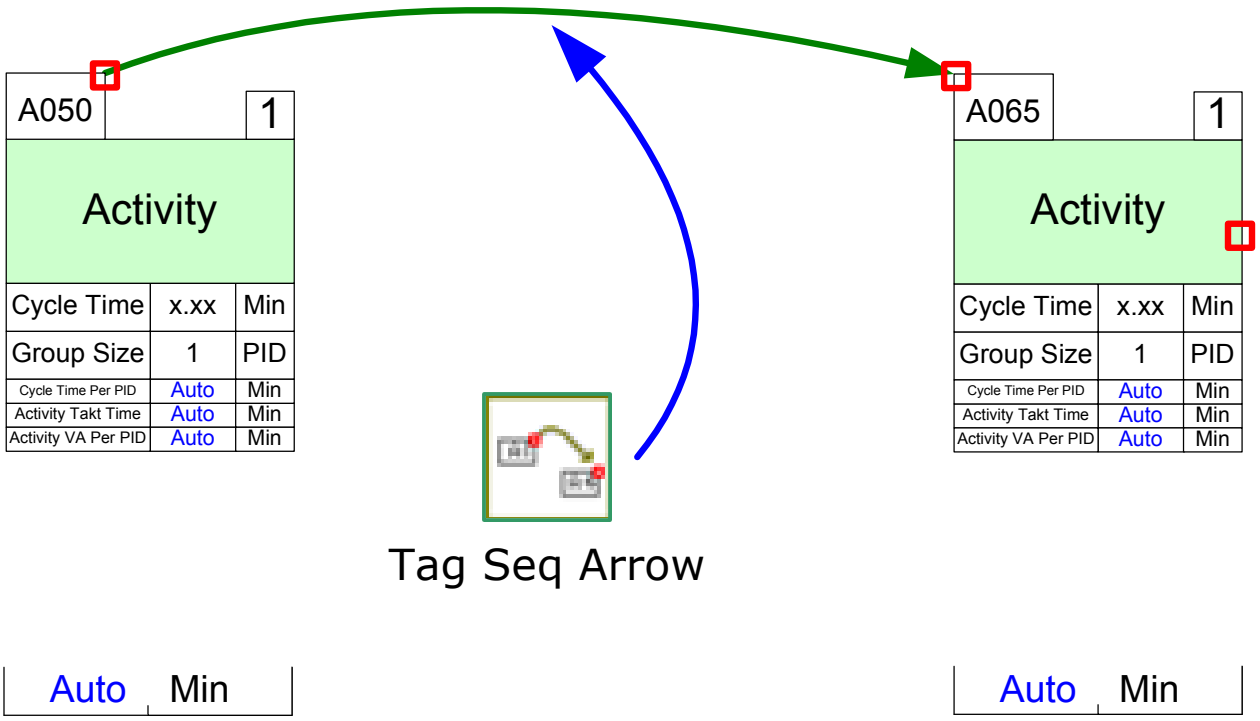
Activity Rolling Time

Add this shape to calculate time up to this point. Requires sequence arrows for calculation (See Rolling Time Section).

Activity Time

Add this shape to denote a unique activity available time (for example, due to a Doctor being required, etc).

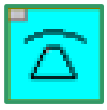
Connecting Activities With Arrows



The 'Tag Seq Arrow' from the Main eVSM stencil should be used to connect activities together to show the sequence (see Tag Sequence Arrow Section in "Analyzing with eVSM" Chapter).

Electronic Info Flow

The red jagged arrow is used to represent electronic information flow (for example, an electronic request for an X-Ray).



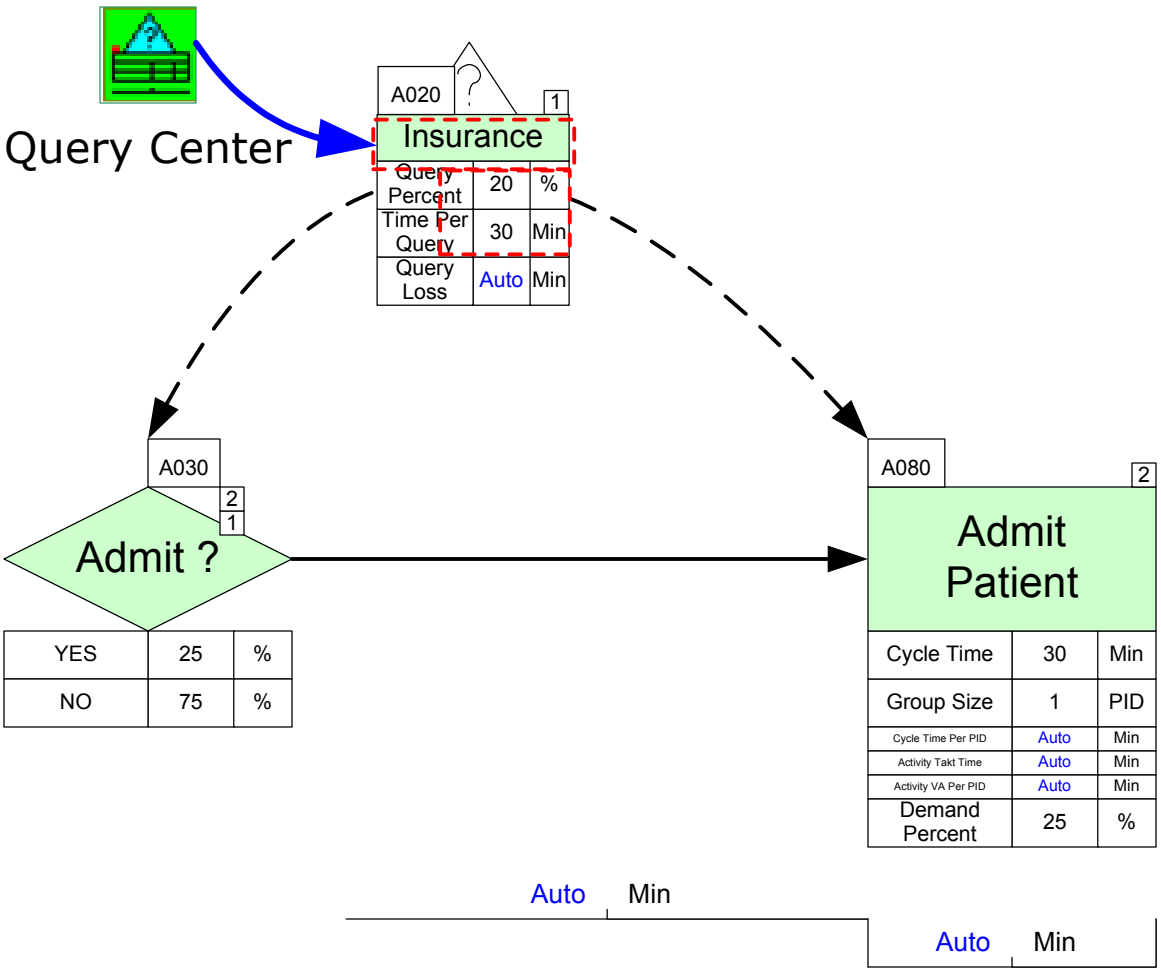
Transmit Shapes

The Blue Transmit Icon allows you to select the method of information flow. Right click the icon to select.

Query Center

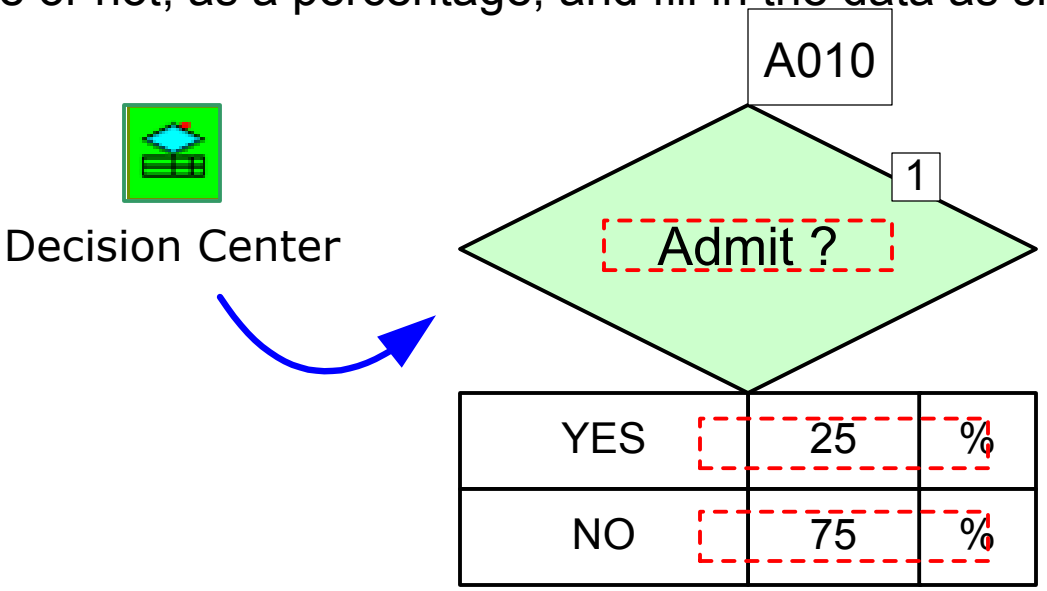
When you do NOT have First Time Correct and Complete Information, use the Query Center to capture waste due to resolving incomplete or incorrect information.

Drag out the Query Center Shape and place it between the 2 activities where the query occurs. Use a double-headed dashed arrow to indicate a query transaction.

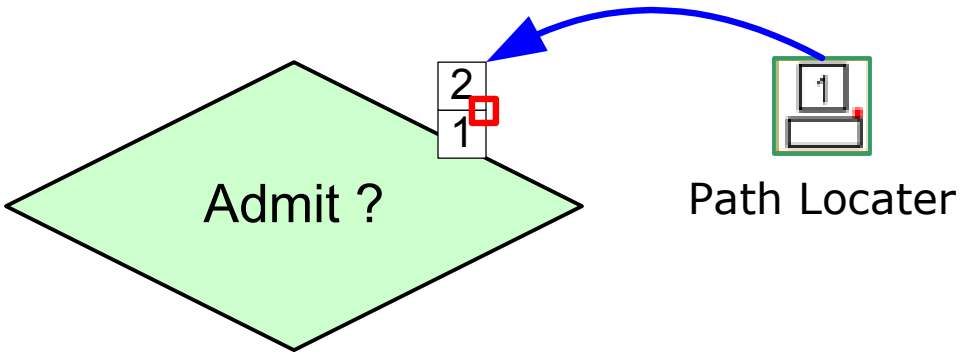


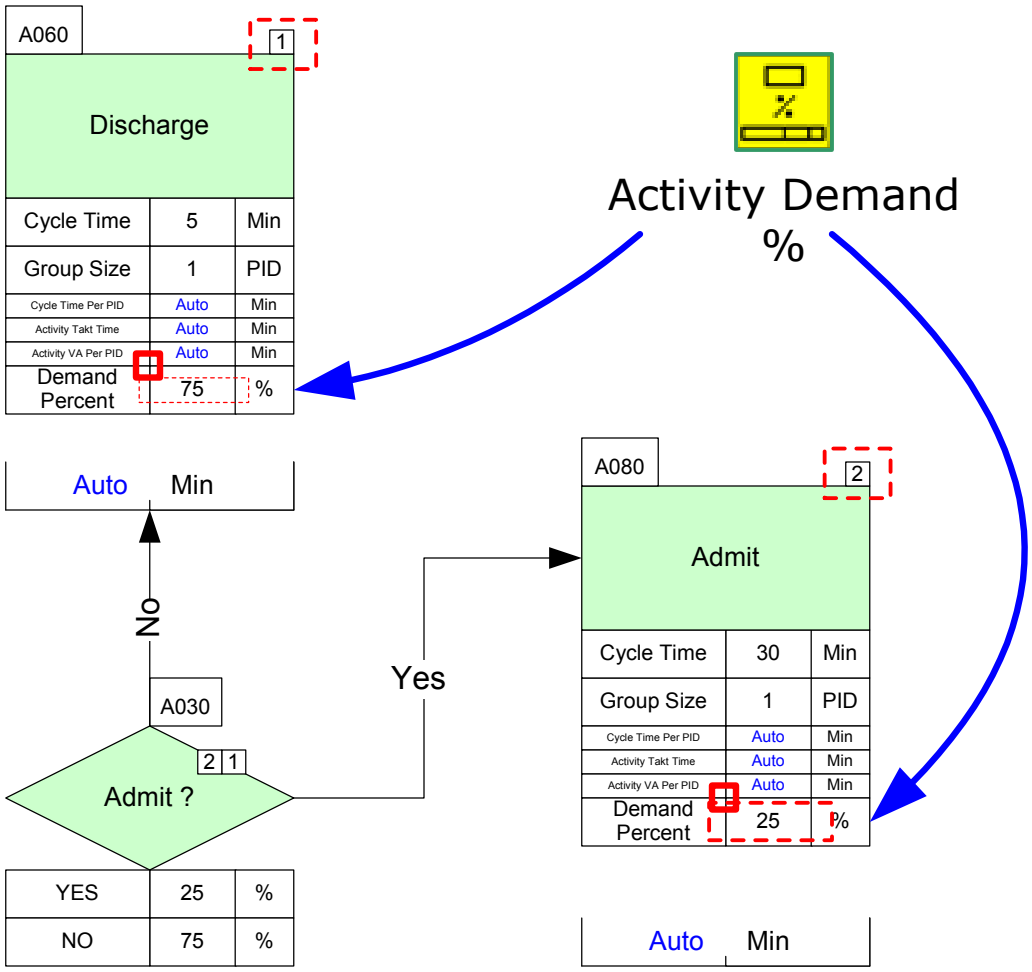
Time to make a Decision

Drag out the Decision block and place it after an activity. This block does not add to process time, but allows for a PID to move to different activities (for example, whether a patient needs admitting or not). Estimate how often this decision is true or not, as a percentage, and fill in the data as shown.

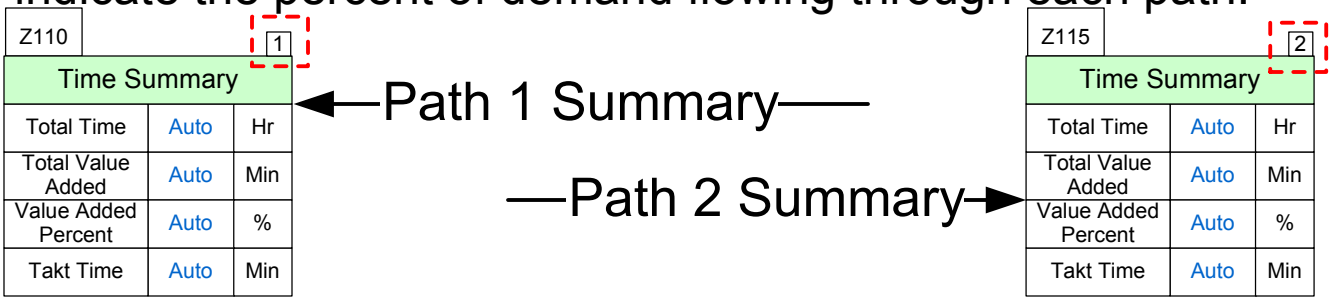


You will need to add a second Path Number to track the alternate path the PID takes (see the following section for a discussion). Drag the Path Locater icon (from the Main eVSM Stencil) onto the Decision shape and connect it. The red square appears briefly to indicate a glue connection. Double click and select a path number for this alternate path.





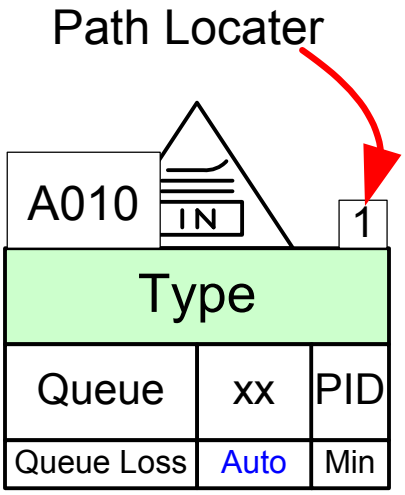
The example above shows the 2 possible paths a patient can take after the decision. Path 1 leads to discharge and Path 2 to admission. You will need to drag the optional 'Activity Demand %' shape and glue it to the Activity Center shapes to indicate the percent of demand flowing through each path.



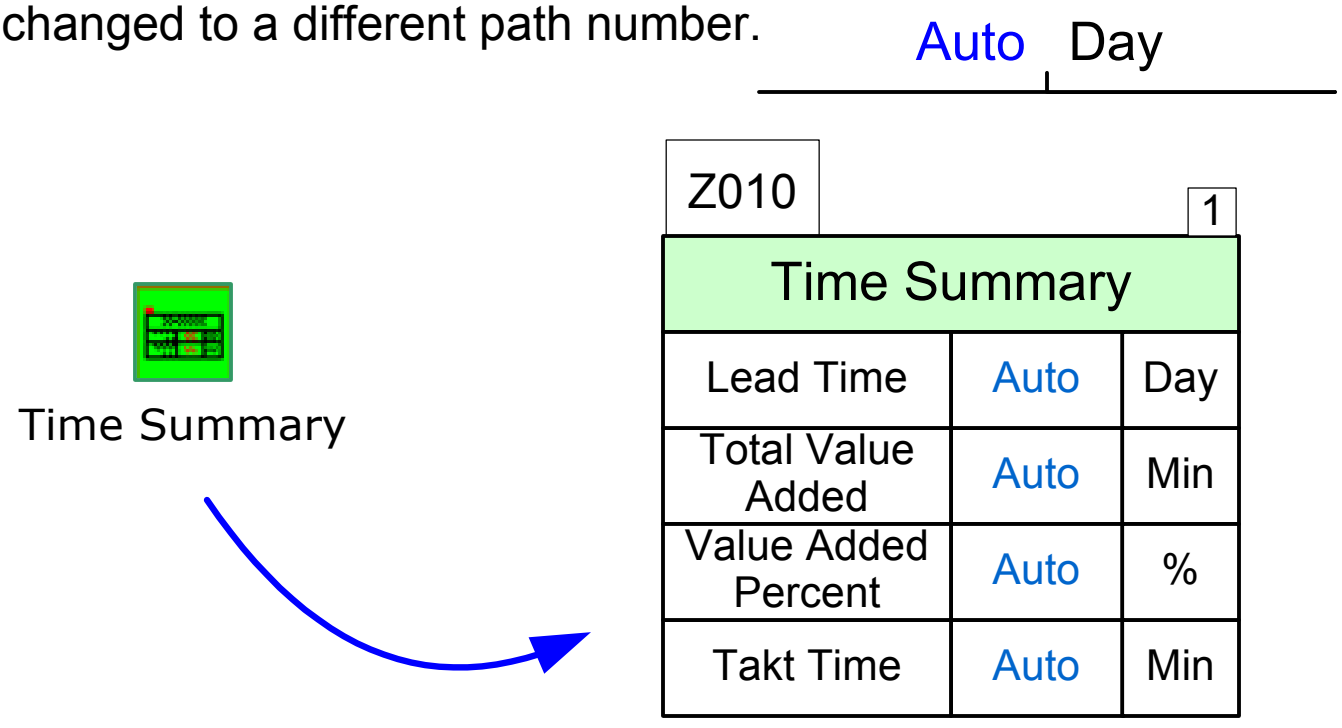
You can then place two Time Summary (see Time Summary section) shapes to summarize the alternate paths.

Path Locater shapes

Every macro shape also has a ‘Path Locater’ shape that that defaults to Path 1.

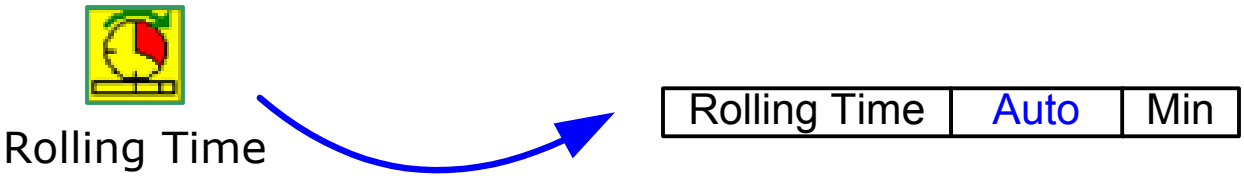


This variable can used to decide (for example) if the VA or NVA time component contributes to the ‘Lead Time’ and if the VA component contributes to the ‘Total Value Added’ in the ‘Time Summary’. If a component is not intended to contribute to the totals its path locater shape should be deleted or changed to a different path number.



Note the “”Path Locater” shapes glued onto the Time Summary. This limits the summation calculation to the path number (1 in this case)

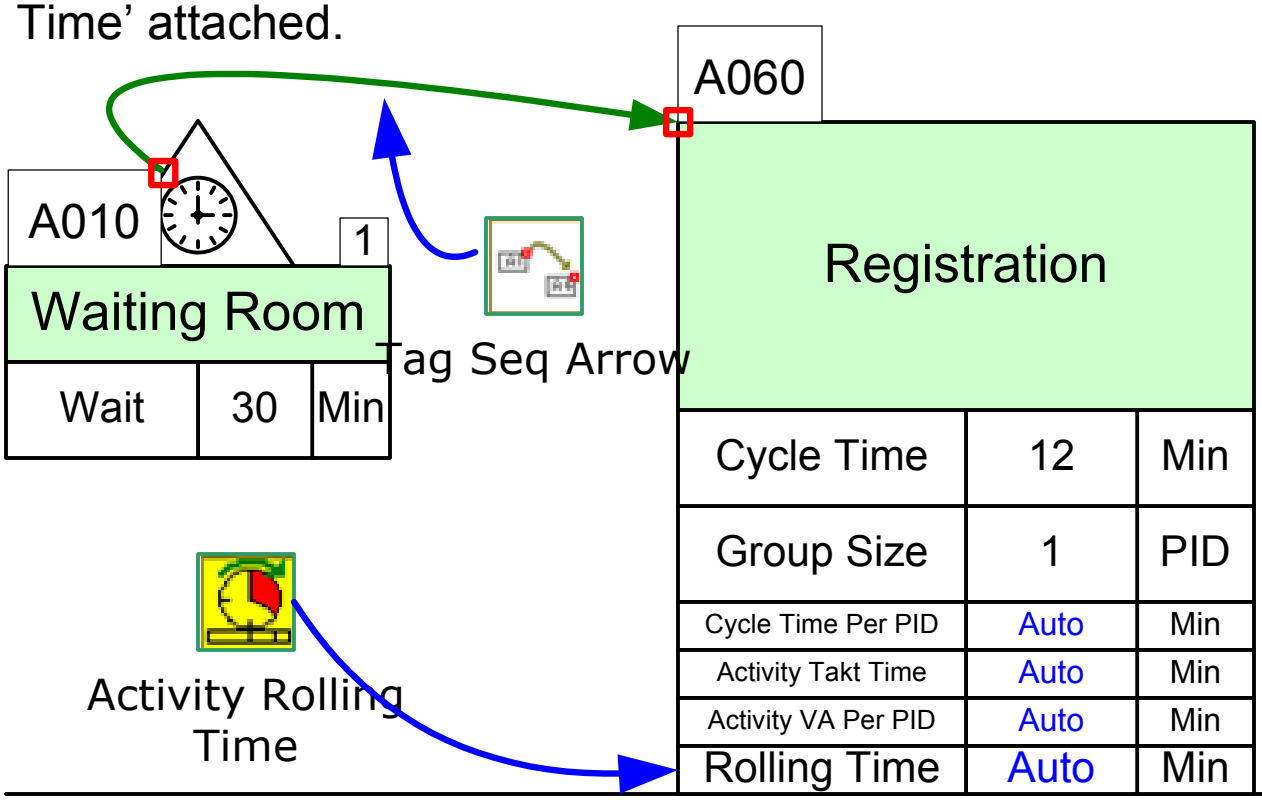
Rolling Time Calculation



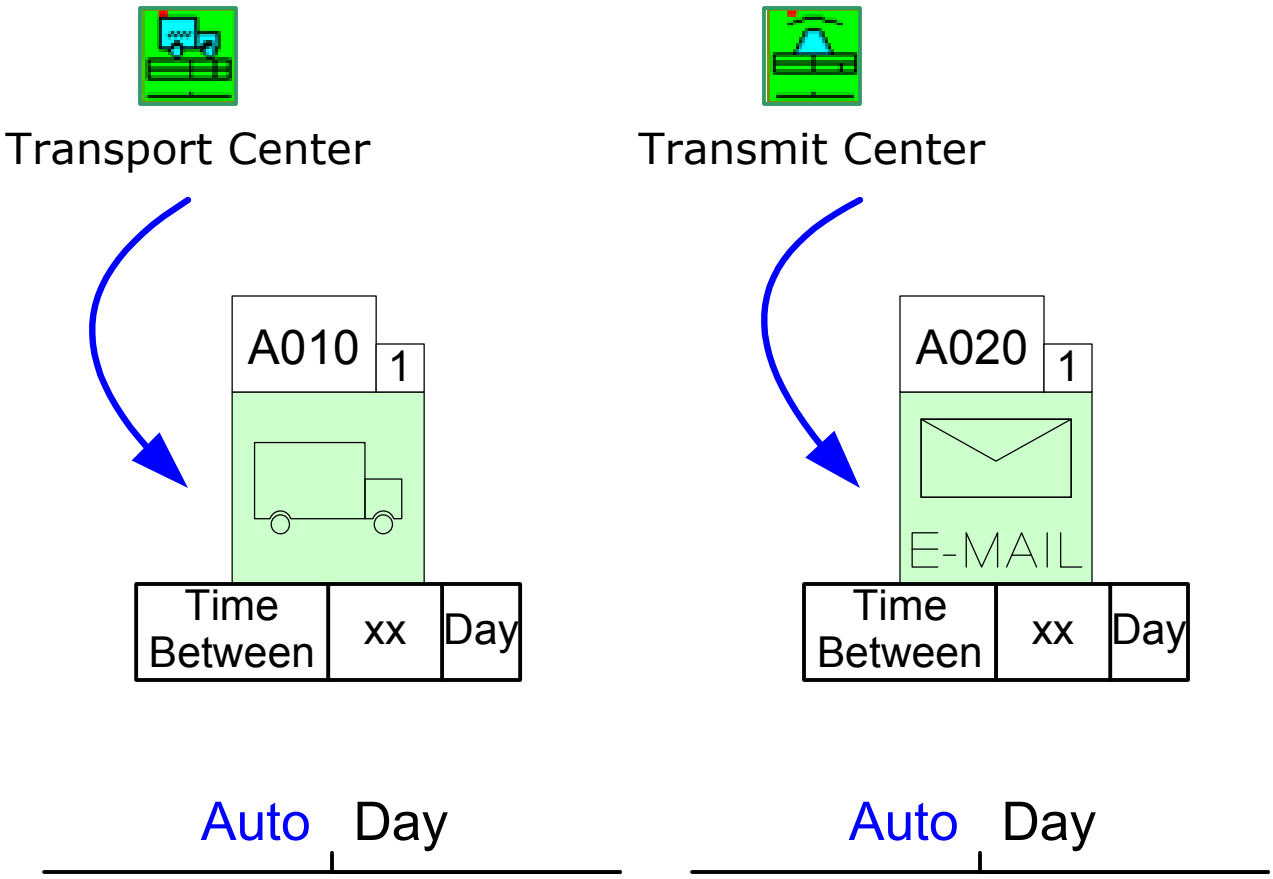
Optional Rolling Time shapes are available for all Shape Centers. They are recognizable by a curved green arrow over a clock in the icon.

Rolling Time is be used to show how long the PID has been on the VSM up to that point.

Rolling Time is automatically calculated, but requires that Shape Tags be connected by sequence arrows (see Tag Sequence Arrow Section in “Analyzing with eVSM” Chapter) and EVERY green shape upstream MUST also have ‘Rolling Time’ attached.



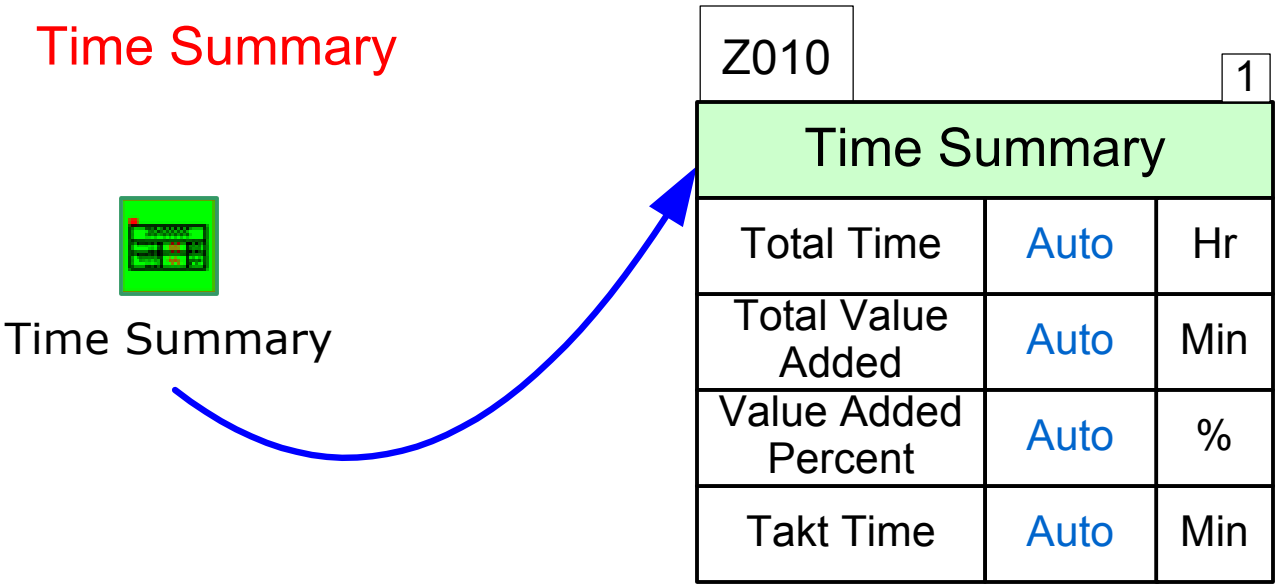
Indicating Transportation or Transmit Method



Delete the ‘Path Locater’ and the NVA data blocks if the NVA time does not participate in the lead time calculation.

Right-click on the transport or transmit icons to select another type from the family.

Time Summary



Drag & drop to the bottom right of the page and just to the right of the VA/NVA timeline.

Note that the “Path 1” filter shapes applied to the summation calculations for ‘Total Time’ and ‘Total Value Added’ time.

Calculating the “Auto” Variables

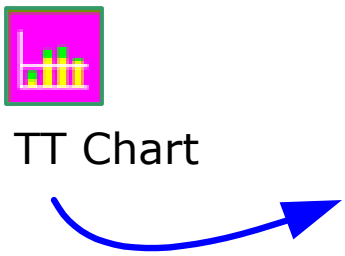
Once you have entered data in all the input fields, make sure that all the light green shapes are tagged (See the ‘Tagging Shapes’ section earlier in this chapter).

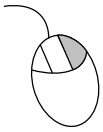
Click the “Q” button in the toolbar to execute the built-in equations. This will create values in all the “Auto” fields.

Quick eVSM

Whenever data is changed on the map, this button should be clicked to update the map.

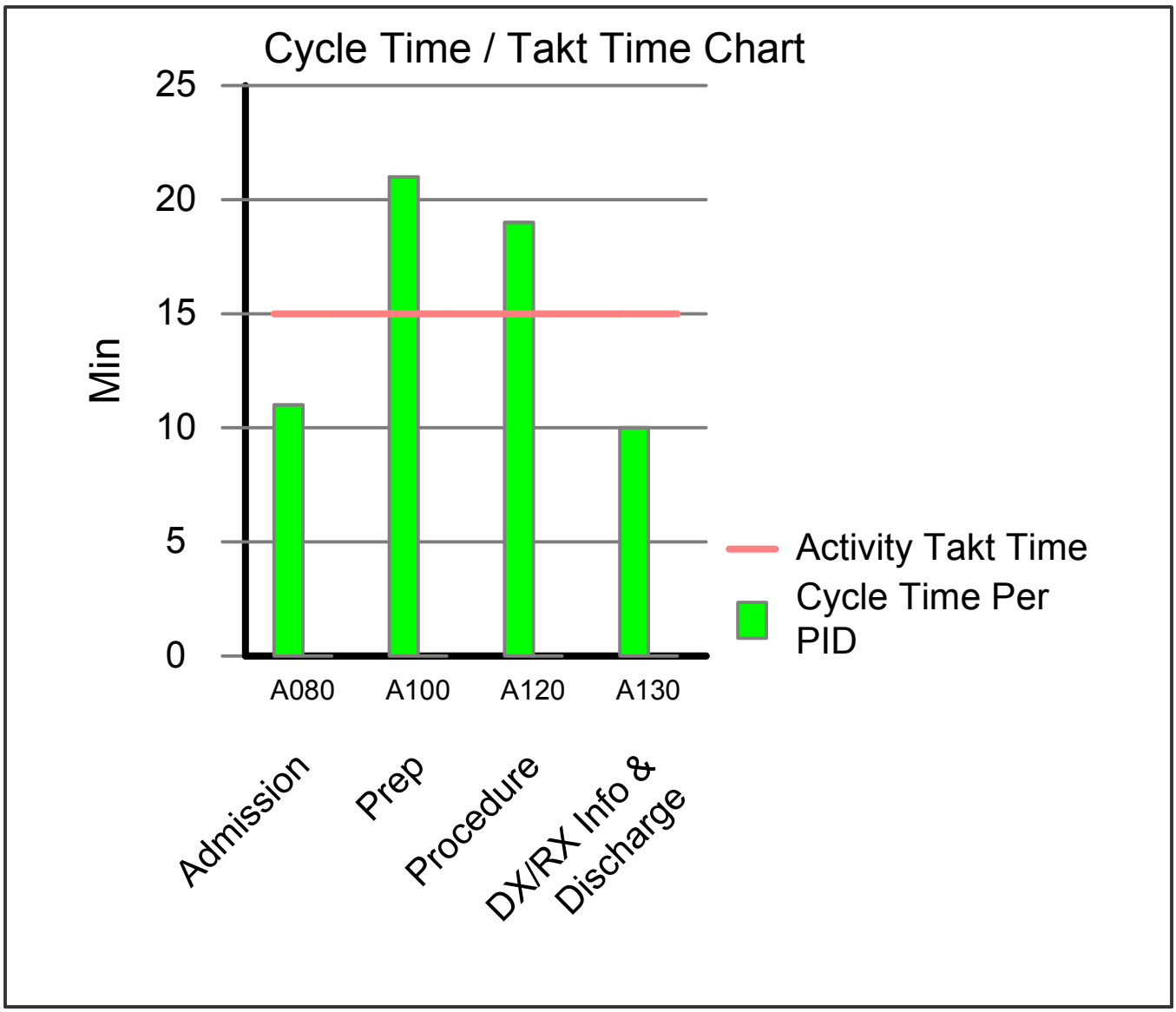
Cycle Time / Takt Time Chart



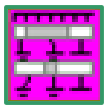


Edit Chart DataPlot ChartCreate Spreadsheet

Drag & Drop the chart on the page and then Right-Click for the ‘Plot Chart’ option. It can be filtered by path number by gluing on a ‘Path Filter’ shape to the bottom right of the chart shape.

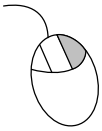


Lead Time Chart

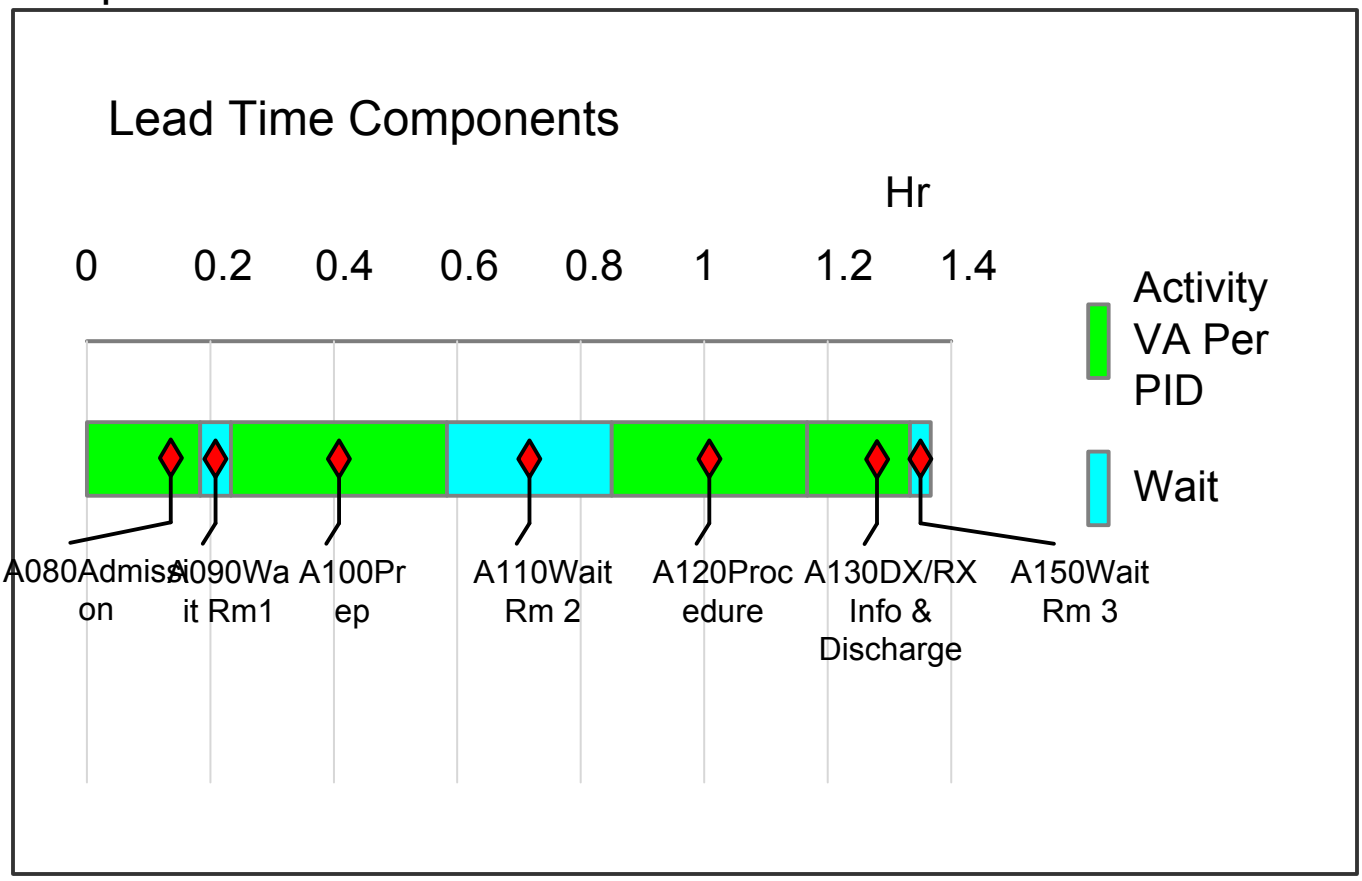


Lead Time Chart

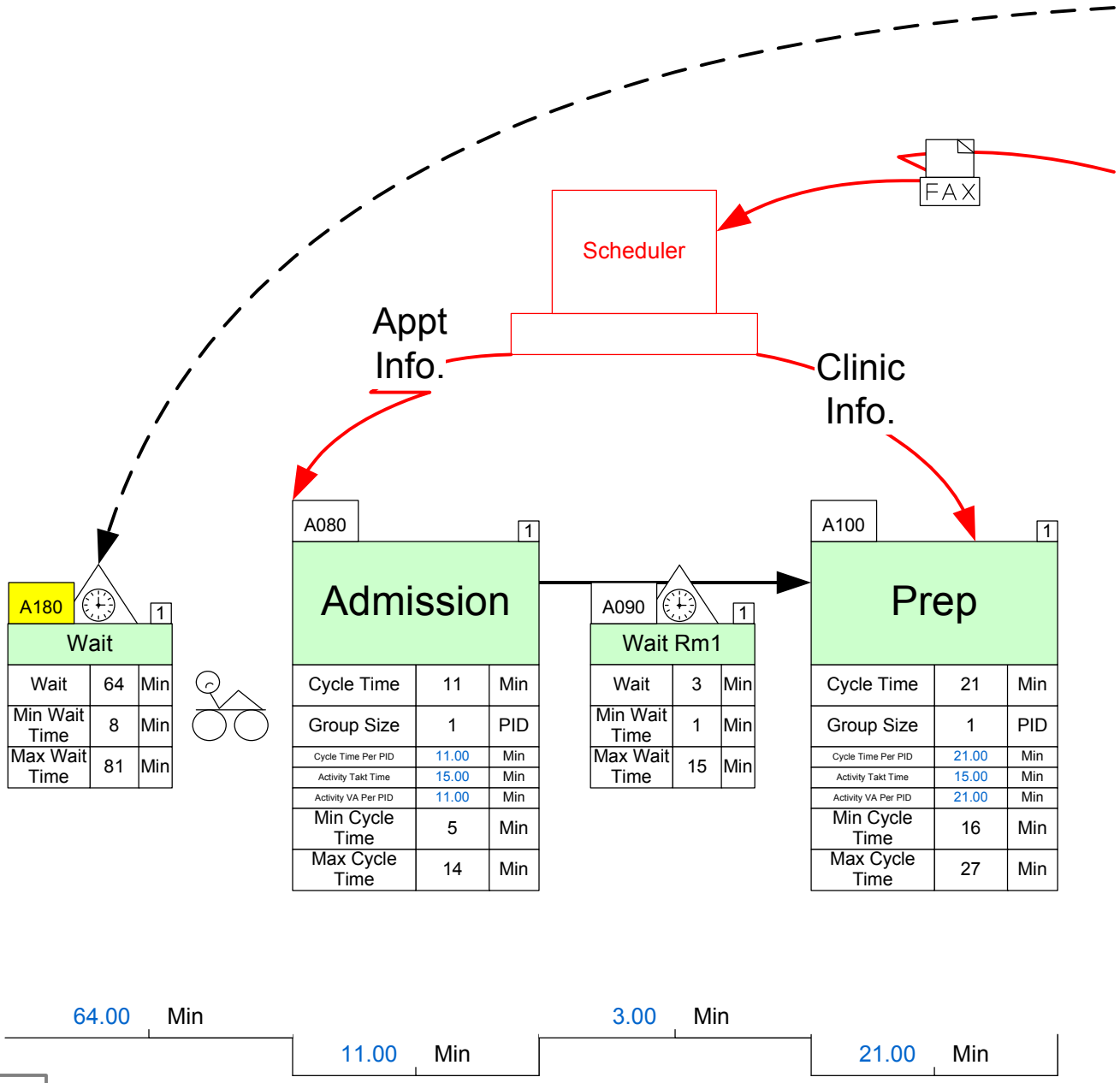
Edit Ladder Chart DataPlot Ladder ChartCreate Spreadsheet



Drag & Drop the chart on the page and then Right-Click for the ‘Plot Chart’ option. It can be filtered by path number by gluing on a ‘Path Filter’ shape to the bottom right of the chart shape.

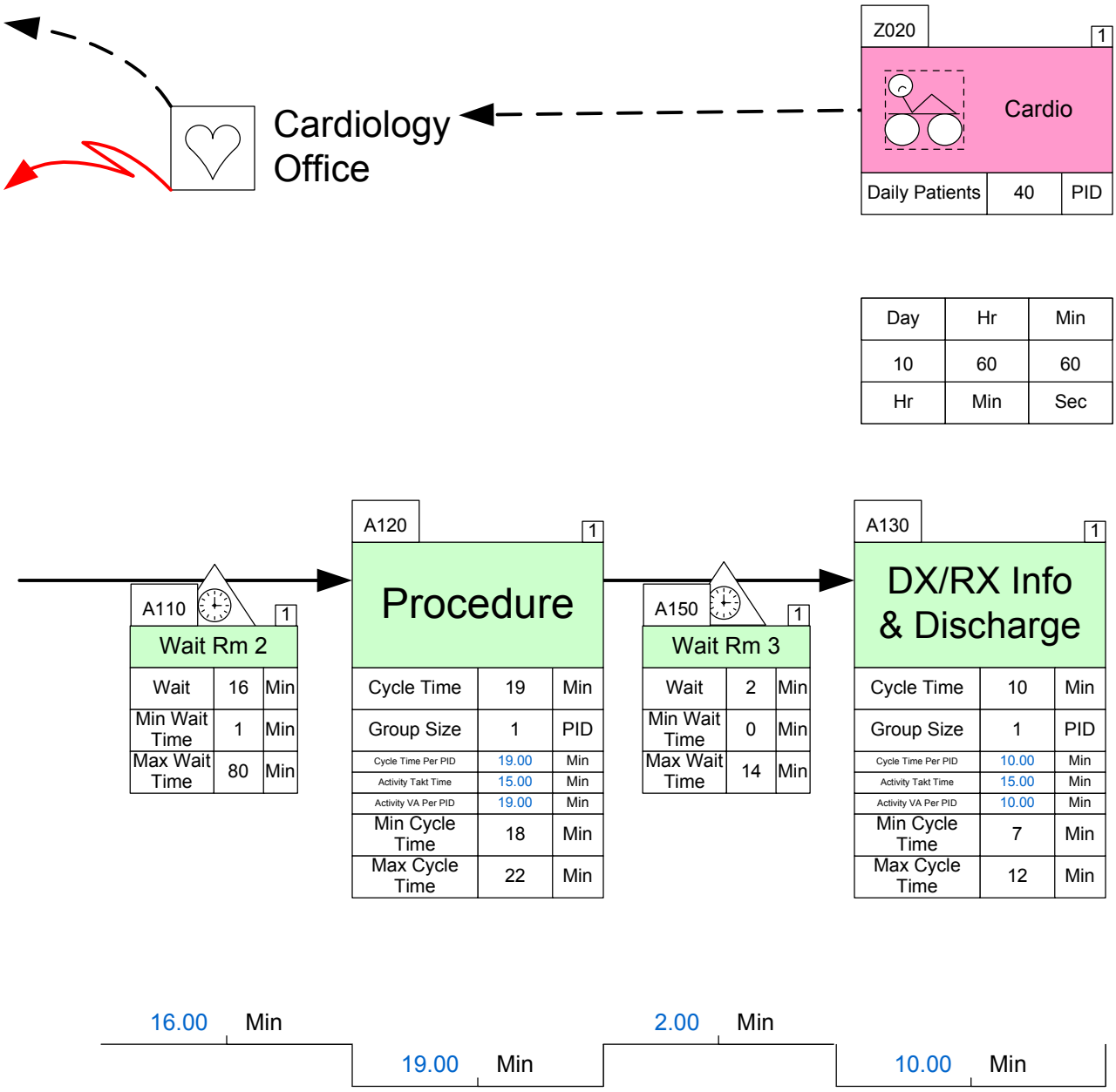


Quick Healthcare VSM Example



Use the Value Stream Map (from Review by Cindy Jimmerson) above as an exercise to create your own first VSM using Quick Healthcare.

If you have any questions or problems contact us at support@evsm.com.



Patient Flow For Treadmills

John Abrahams

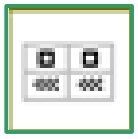
Rev 4, July 23rd

Z200

1

Time Summary		
Total Time	2.43	Hr
Total Value Added	61.00	Min
Value Added Percent	41.78	%
Takt Time	15.00	Min

Key Creator



Key Creator

Adding this Shape to a map will give you a summary of all the icons used on the map.

Var Key Creator

Var Key Creator

Adding this Shape to a map will give you a summary of all the variables used on the map.

Quick Healthcare Info

Quick HC Info

This shape contains an image that lays out the content of the Quick HC stencil on a single page and provides annotation on the equations that are involved in calculating all the “Auto” fields.

Drag out the shape for Preview or Printing.

Quick HC Summary

Quick HC stencils provide a standard, easy, and rapid means of creating, analyzing, and visualizing the map.

The Quick Healthcare stencil in eVSM V5 provides a highly productive way of working with value stream maps. The eVSM group plans to create further “Quick” stencils in response to customer demand. If you have such a request please email us at support@evsm.com.

5. Quick MCTLite

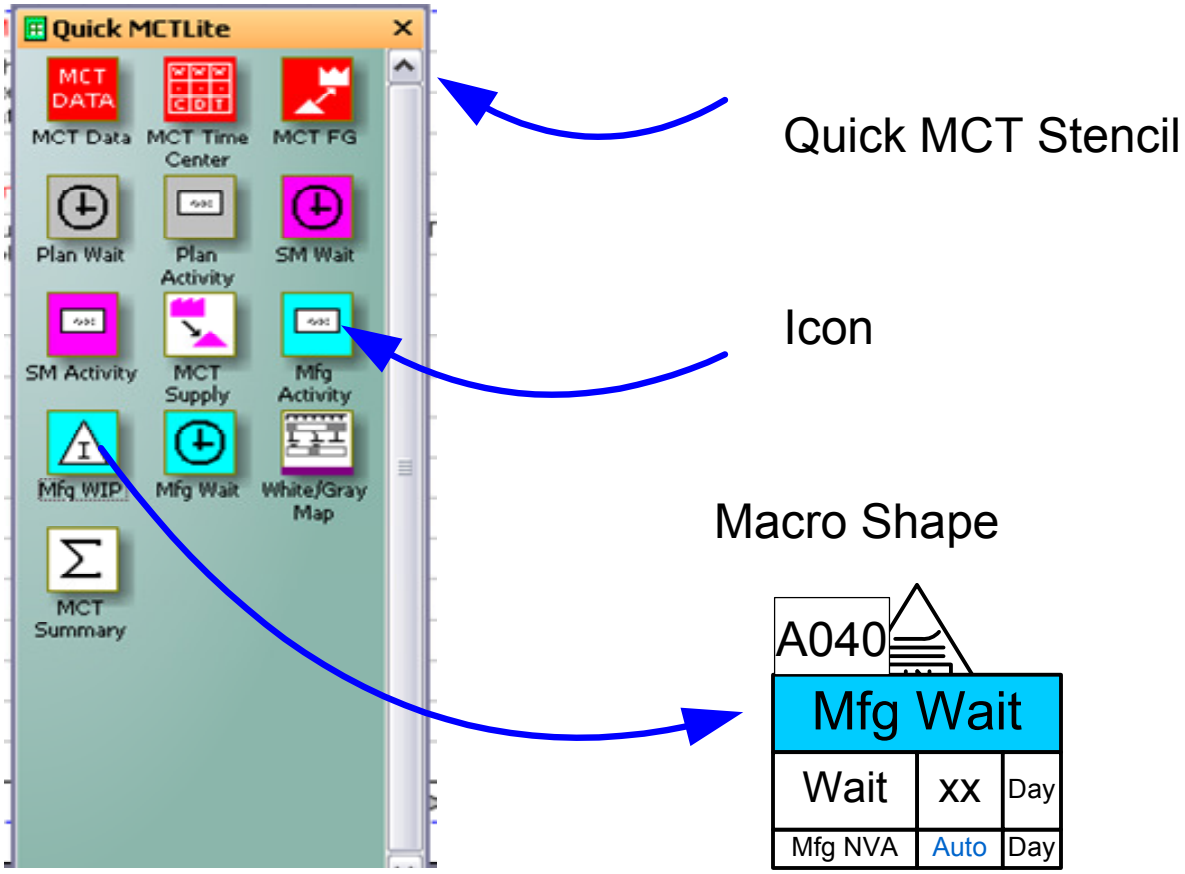
What is Quick MCTLite ?

Manufacturing Critical-path Time (MCT) is Quick Response Manufacturing's (QRM) metric for Lead Time. The Quick MCTLite allows for quick drawing of maps with Flow Times and the MCT chart.

Opening the Quick MCTLite Stencil.

From the eVSM Toolbar, click on the Quick MCT button to open up the MCT stencils.

Quick MCT Button



Can Quick eVSM stencils be used on existing maps ?

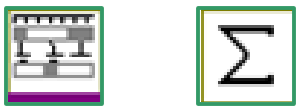
You can only use the Quick eVSM stencils for completely NEW maps. The stencils relies on a standard set of names, units and eqn's that old maps will not be compliant to.

Quick eVSM Stencils : Icon Conventions

The icons in the Quick eVSM stencils (such as the Quick MCTLite stencil) have the following conventions:

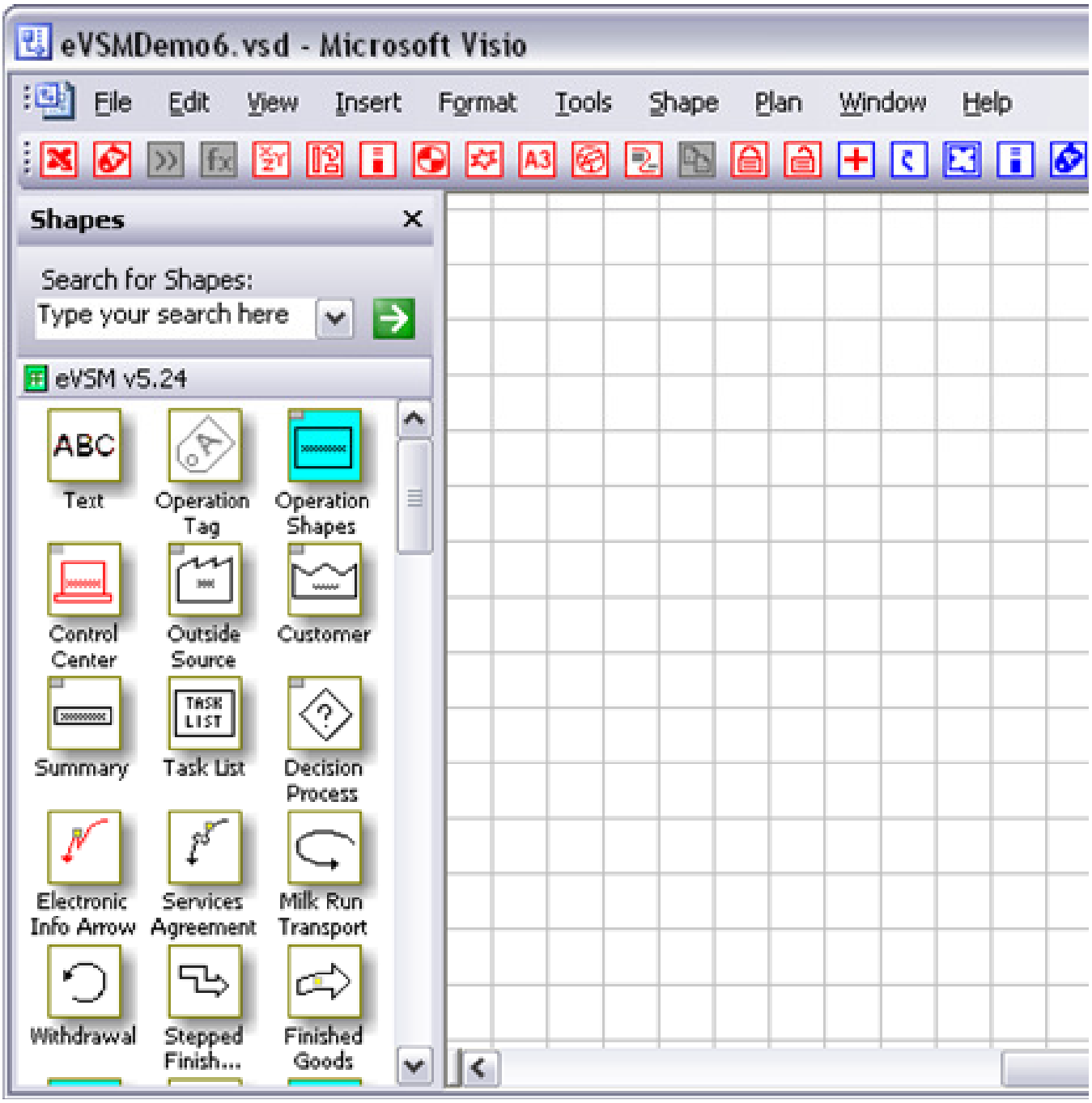
The 3 RED Quick MCT Icons need to be placed on EVERY map and should be the first items placed on the map.

Process Groups (Planning, Supplier Management (SM), Manufacturing) each have their own color Main icons.

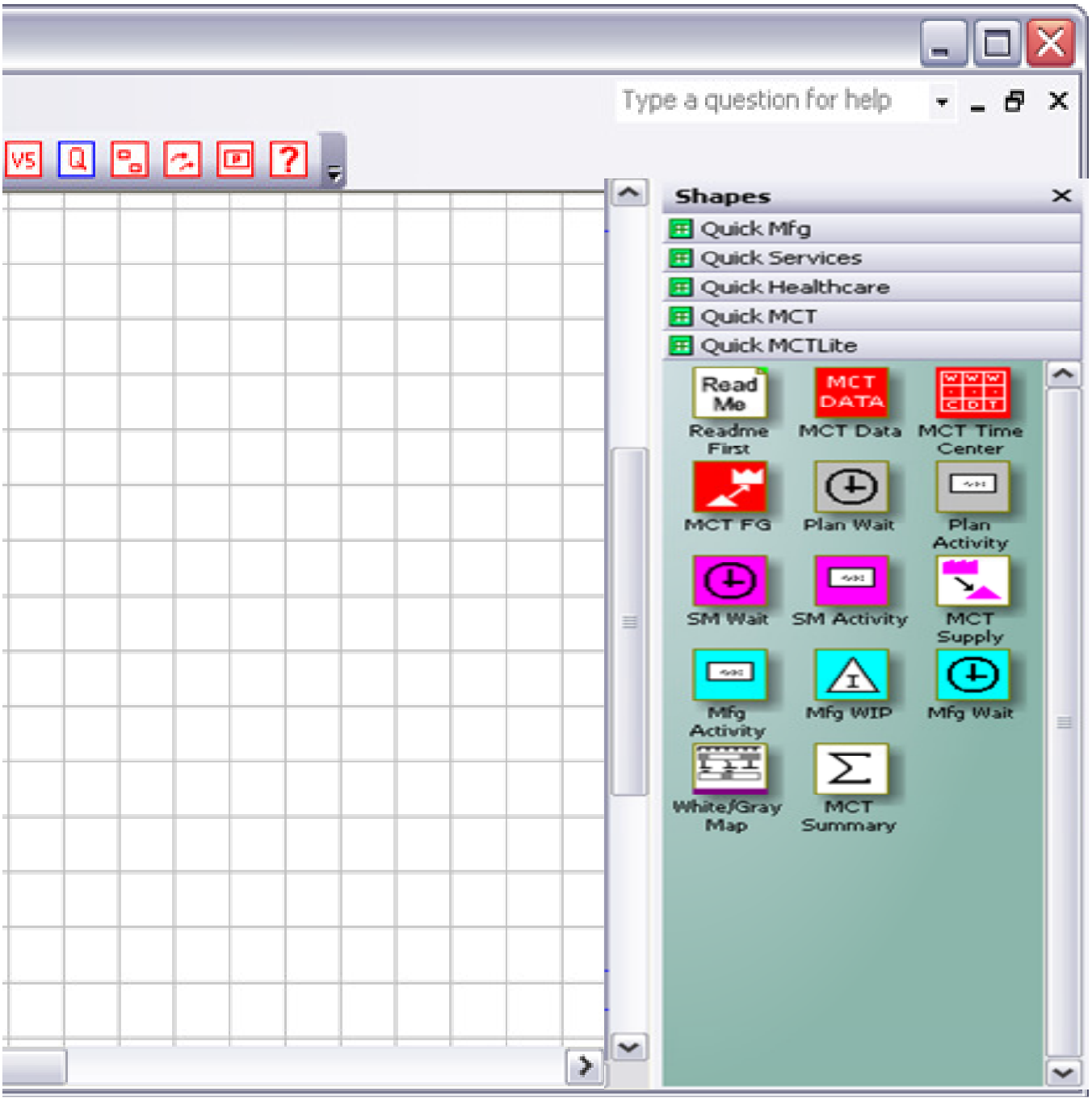


These icons represent Charting and Summaries.

Recommended Layout for Quick eVSM



Note that the main eVSM stencil (typically named eVSM vX.XX) is on the left of the screen. We will refer to this as the "Main Stencil". Its important that this stencil is never closed because closing it disables eVSM toolbar functions.



Any Quick eVSM stencils (such as Quick MCTLite) are docked on the right of the screen. We will refer to such stencils as the “Quick Stencil”. Click and drag the Quick Stencil header bar to move it to this docked position.

Icon Help

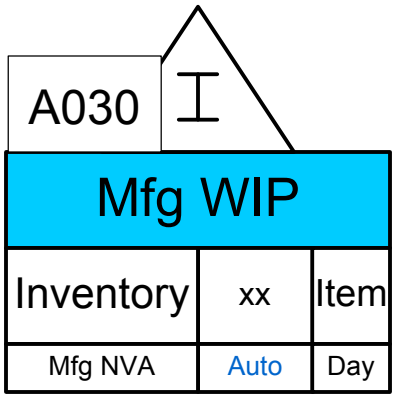
Quick eVSM Icons all have associated help which is accessed by selecting the icon in the stencil than clicking ‘iQ’ in the toolbar.

Drag and Drop Behavior

When you drag and drop an icon on the page it creates either a single shape or a macro shape (a set of connected Shapes).

Moving Shapes On The Map

When the macro shapes corresponding to the Main icons are dragged onto the page, they include an ‘Anchor Shape’ that is colored. To move the macro shape as a whole, this anchor shape should be moved. In the diagram, the truck is the anchor shape.



Zooming In and Out

- **CTRL-SHIFT-Drag** Select region (Zoom into the selected region)

Page Resizing

When you run out of space on the drawing page, DO NOT resize eVSM shapes. Instead just make the drawing page bigger. An easy way to do this in Visio is to hold down the CTRL key and move the cursor to any edge of the page. The cursor will turn into a double-headed arrow. Just grab the edge and pull to required size. Avoid the page corners when re-sizing the page.

Snap To Grid

Shapes are designed to be grid-sized. Snap shapes to grid locations for easy alignment.

Resizing Shapes

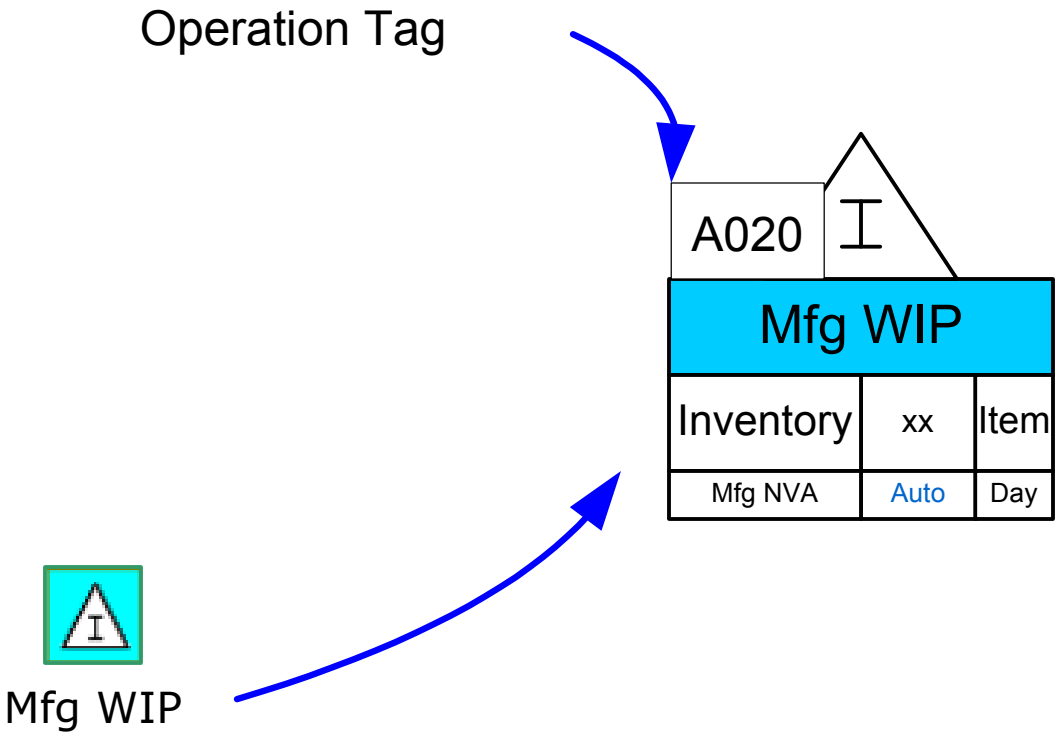
Avoid resizing shapes whenever possible. Shapes are designed to fit together and resizing a shape will make “fit” difficult and create extra work.

Text Editing

Double-click a shape to edit its text.

Tagged and Path Located Shapes

Some icons in the stencil have shapes that are pre-tagged via an “Operation Tag”.



When the shape is dragged onto the map its operation tag will “auto-number” to create a unique tag ID. You can double-click and change the ID but it MUST be unique on the map and it MUST be an alphabetic character followed by 3 numerals.

The charts in Quick MCT are plotted in tag alphabetic sequence order.

Data Shapes

Quick eVSM data shapes have 3 types of entries:

Shapes with xx in the center field indicate values that MUST be entered.

Cycle Time	x.xx	Min

Some shapes have default values already entered. Override these when necessary.

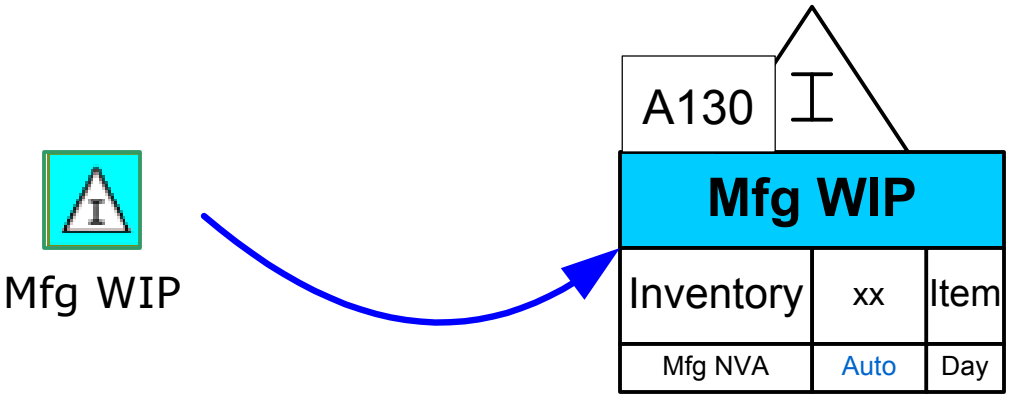
Flow Time	0	OHr

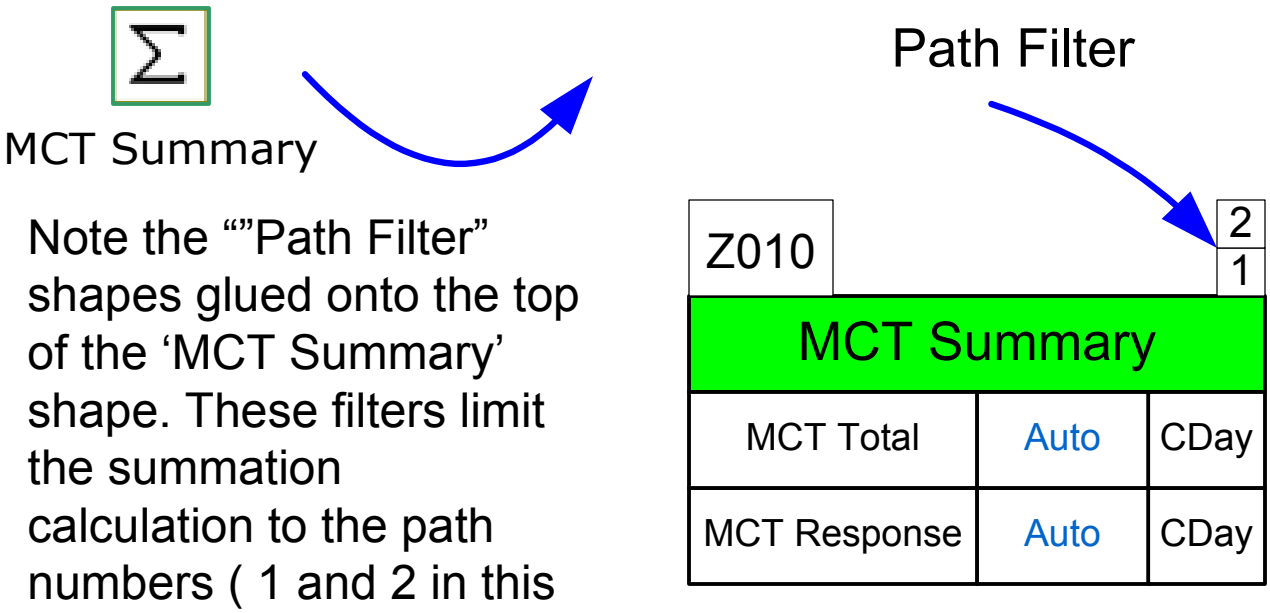
Any shapes with ‘Auto’ fields should be left alone. They will be automatically calculated.

Mfg VA	Auto	Min
Mfg NVA	Auto	Day

Path Locater shapes

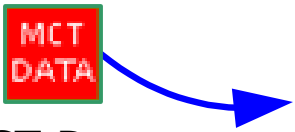
Every macro shape that has a Value Added (VA) or Non Value Added (NVA) data shape contribute to MCT Total and Response.





Note the “”Path Filter” shapes glued onto the top of the ‘MCT Summary’ shape. These filters limit the summation calculation to the path numbers (1 and 2 in this case). They are also used to map separate paths in the MCT Chart.

Drawing Your First Map With Quick MCT Stencil



MCT Data

Place the ‘MCT Data’ on the bottom left of the page.

Time Center

Fill out all the “XX” values in the units converters. In these converters time units prefixed with an “O” refer to office times, those with a “C” refer to calendar times and those without a prefix relate to production times

Wk	Day
xx	xx
Day	Hr

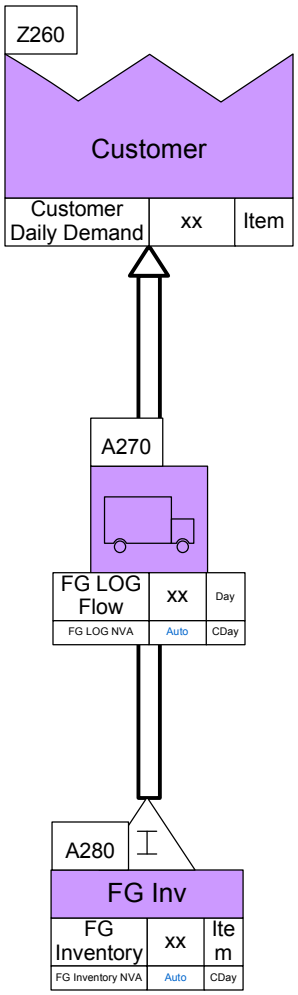
Wk	ODay
xx	xx
ODay	OHr

Wk	CDay	CHr	CMin	OHr	OMin	Hr	Min
7	24	60	60	60	60	60	60
CDay	CHr	CMin	CSec	OMin	OSec	Min	Sec

MCT FG

MCT FG

Start drawing the map by dragging out the MCT FG shape and placing it to the right of the page. Leave the “Auto” fields alone. These will be calculated later using the built-in MCT Equations. Fill in any “XX” values.

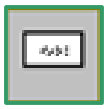


Planning Centers

Drag out the wait and activity shapes for Planning and fill in any values. . The “Activity Wait Time” field refers to the NVA time within an activity.

Planning Cont'd

A210		
Planning Activity		
Cycle Time	xx	OMin
Flow Time	0	OHr
Pln VA	Auto	CMin
Pln NVA	Auto	CHr



Plan Activity

Flow Time is the total time taken by an item entering this process to exiting it (including any non-processing (NVA) time). Cycle Time is the actual hands on time.

A010		
Planning Queue		
Wait	xx	OHr
Pln NVA	Auto	CHr

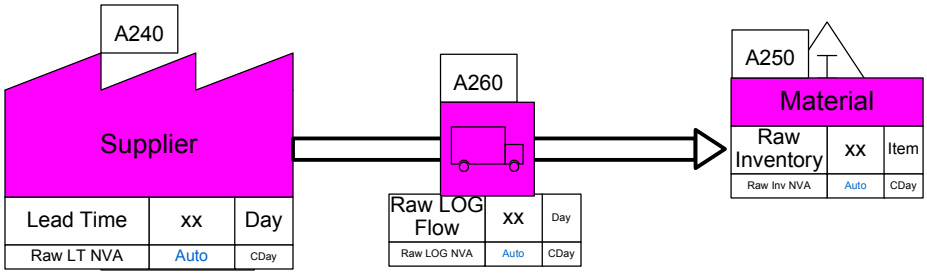
Plan Wait

'Wait' time captures waste due to queues.

SM (Supplier Management) Centers

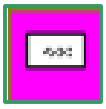
Drag out as many ‘ MCT Supply ‘ shapes as there are significant raw materials that you want to model on the map. Position each set vertically under the prior one as you drag it out and on the left of the drawing. You can easily make the page bigger if needed (See the eVSM Environment Chapter in the on-line user manual)

MCT Supply



Drag out the wait and activity shapes for SM and fill in any values.

SM Wait

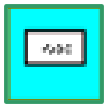


SM Activity

Mfg (Manufacturing) Centers

Drag out manufacturing WIP, Wait and Activity shapes to complete the VSM

Mfg WIP



Mfg Activity

Mfg Wait

Putting path numbers on shapes

Use the red “eVSM Tag Path Locater Defaults” toolbar button to set up path number defaults and then use the red “eVSM AutoPath” toolbar button to pick each set of activity shapes in sequence and apply path numbers to them and staring at the customer shape. The MCT chart will have one bar for each path number

eVSM AutoPath

eVSM Tag Path Locater Defaults

Calculating the “Auto” Fields

Click the “Quick eVSM” button in the eVSM toolbar. Give it time to calculate all the fields (can take a few minutes). You must click this button to rerun calculations when you change map data.

Quick eVSM

Drawing the MCT Chart

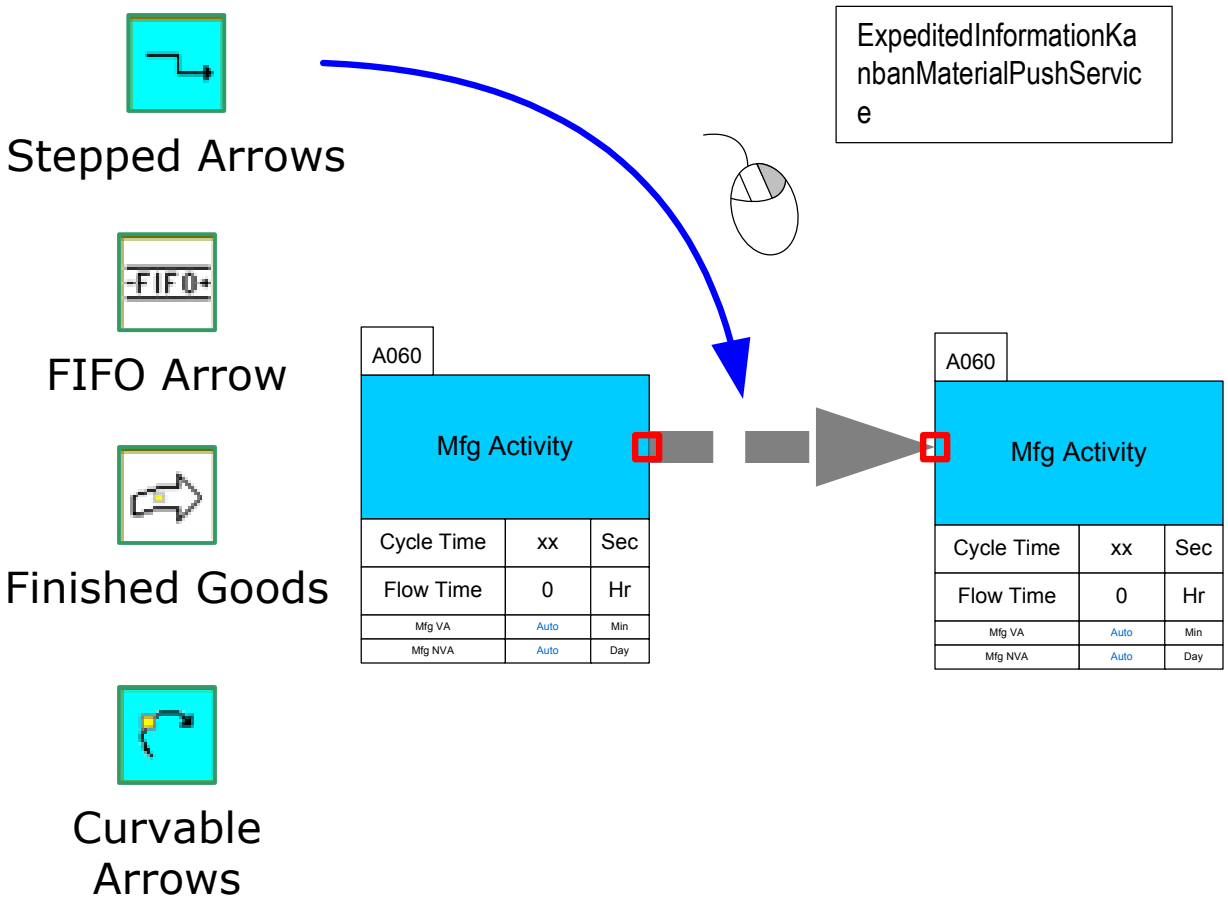
Drag out the ‘White/Gray Map’ shape and attach “Path Filter” shapes to it from the stencil on the left of the page. These are glued to the bottom right corner. One path filter shape for each path number. Now right-click the chart shape and select the “plot” option

White/Gray Map

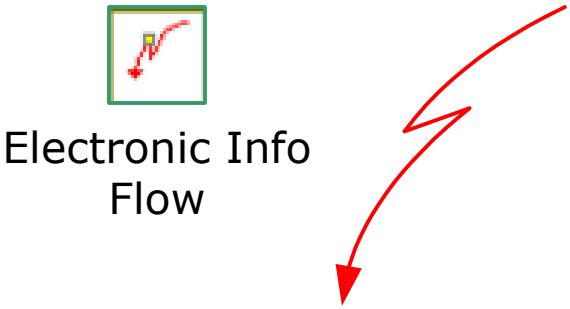
MCT Summary

Drag out the ‘MCT summary’ shape and attach a “path locater” shape to the top right of the activity. Double click the path locater shape to select the path you want a summary for. Only ONE path locater should be attached to the summary. Once this is done click the “eVSM Calculator” button in the toolbar to calculate the summary values

Connecting Activities With Arrows



One of the arrows above should be used to connect activities together to show the sequence. A Right-Click provides additional formats to show the type of flow (PUSH in the above example).



The red jagged arrow is used to represent electronic information flow (for example, an email of a forecast from a customer).

6. Quick MCT

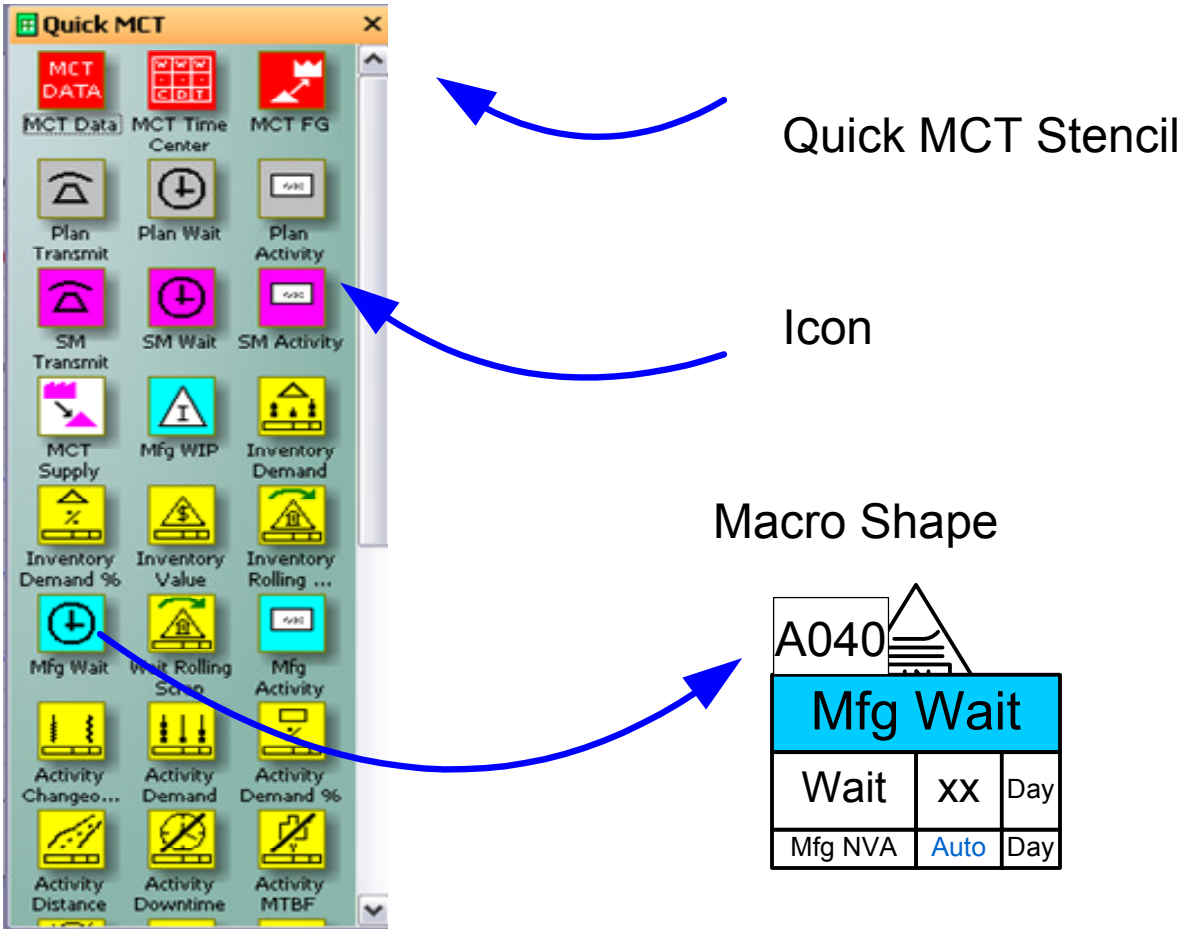
What is Quick MCT ?

Manufacturing Critical-path Time (MCT) is Quick Response Manufacturing's (QRM) metric for Lead Time. The Quick MCT is the more advanced template that features detailed variables for full VSM and MCT calculations

Opening the Quick MCT Stencil.

From the eVSM Toolbar, click on the Quick MCT button to open up the MCT stencils.

Quick MCT Button



Can Quick eVSM stencils be used on existing maps ?

You can only use the Quick eVSM stencils for completely NEW maps. The stencils relies on a standard set of names, units and eqn's that old maps will not be compliant to.

Quick eVSM Stencils : Icon Conventions

The icons in the Quick eVSM stencils (such as the Quick MCT stencil) have the following conventions:

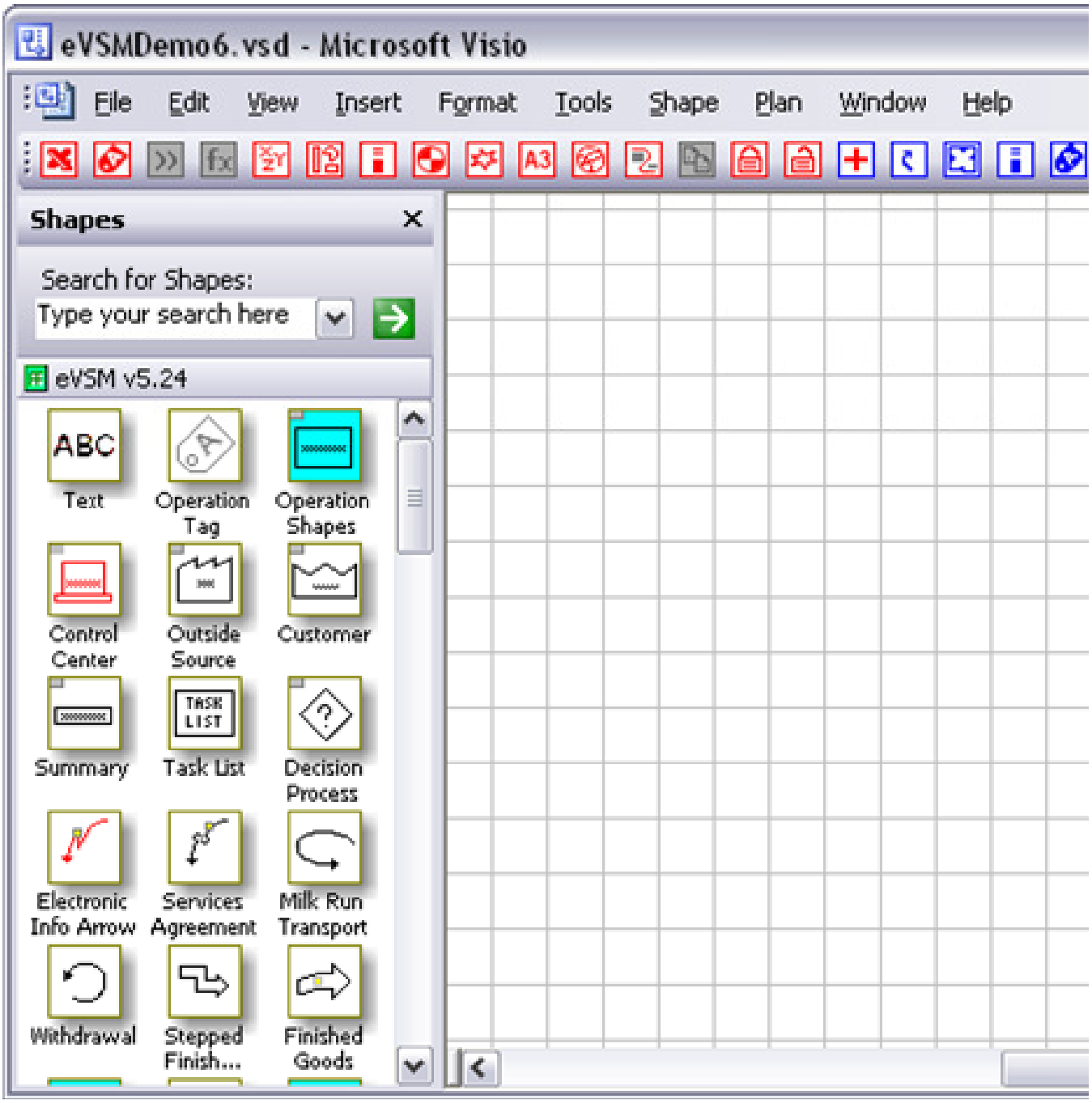
The 3 RED Quick MCT Icons need to be placed on EVERY map and should be the first items placed on the map.

Process Groups (Planning, Supplier Management (SM), Manufacturing) each have their own color Main icons.

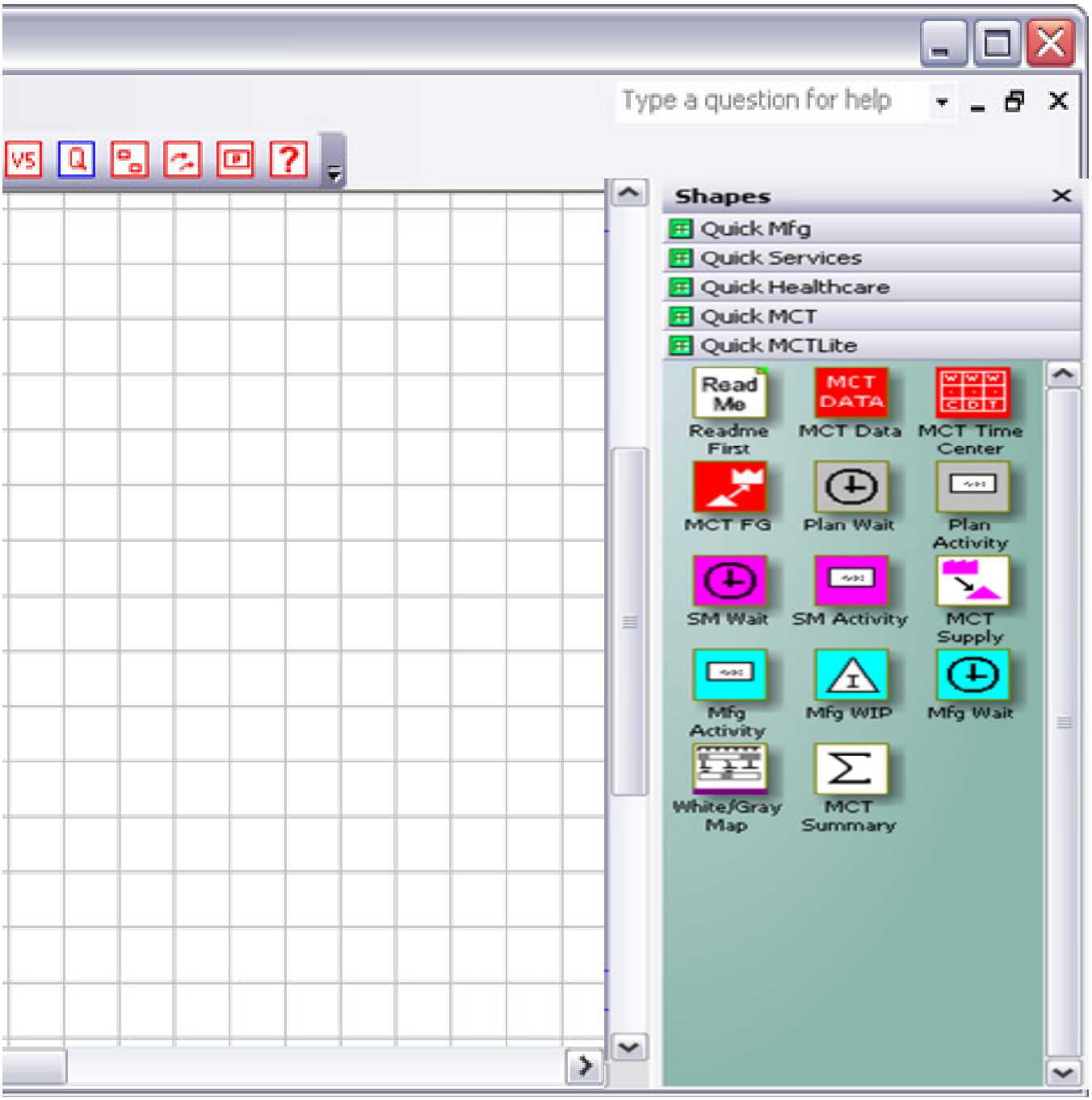
Yellow Quick eVSM Icons represent optional add-ons to the main macro shapes. These icons are named to correspond to the Main icons to which they can be added.

These icons represent Charting and Summaries.

Recommended Layout for Quick eVSM



Note that the main eVSM stencil (typically named eVSM vX.XX) is on the left of the screen. We will refer to this as the "Main Stencil". Its important that this stencil is never closed because closing it disables eVSM toolbar functions.



Any Quick eVSM stencils (such as Quick MCT) are docked on the right of the screen. We will refer to such stencils as the "Quick Stencil". Click and drag the Quick Stencil header bar to move it to this docked position.

Icon Help

Quick eVSM Icons all have associated help which is accessed by selecting the icon in the stencil than clicking ‘iQ’ in the toolbar.

Drag and Drop Behavior

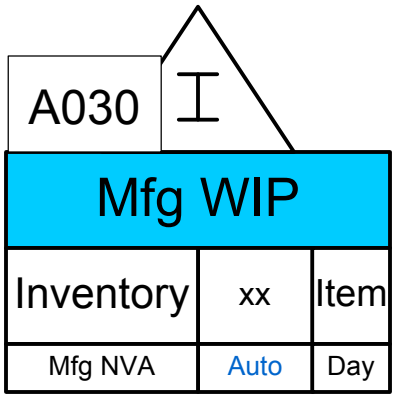
When you drag and drop an icon on the page it creates either a single shape or a macro shape (a set of connected Shapes).

Except yellow icons all the others are independent and do not need to be attached to other items when they are being dropped on the page.

Yellow icons represent add-on shapes. They need to be positioned and attached to their parent shape as part of the drag & drop process.

Moving Shapes On The Map

When the macro shapes corresponding to the Main icons are dragged onto the page, they include an ‘Anchor Shape’ that is colored. To move the macro shape as a whole, this anchor shape should be moved. In the diagram, the ‘Mfg WIP’ is the anchor shape.



Zooming In and Out

- **CTRL-SHIFT-Drag** Select region (Zoom into the selected region)

Page Resizing

When you run out of space on the drawing page, DO NOT resize eVSM shapes. Instead just make the drawing page bigger. An easy way to do this in Visio is to hold down the CTRL key and move the cursor to any edge of the page. The cursor will turn into a double-headed arrow. Just grab the edge and pull to required size. Avoid the page corners when re-sizing the page.

Snap To Grid

Shapes are designed to be grid-sized. Snap shapes to grid locations for easy alignment.

Resizing Shapes

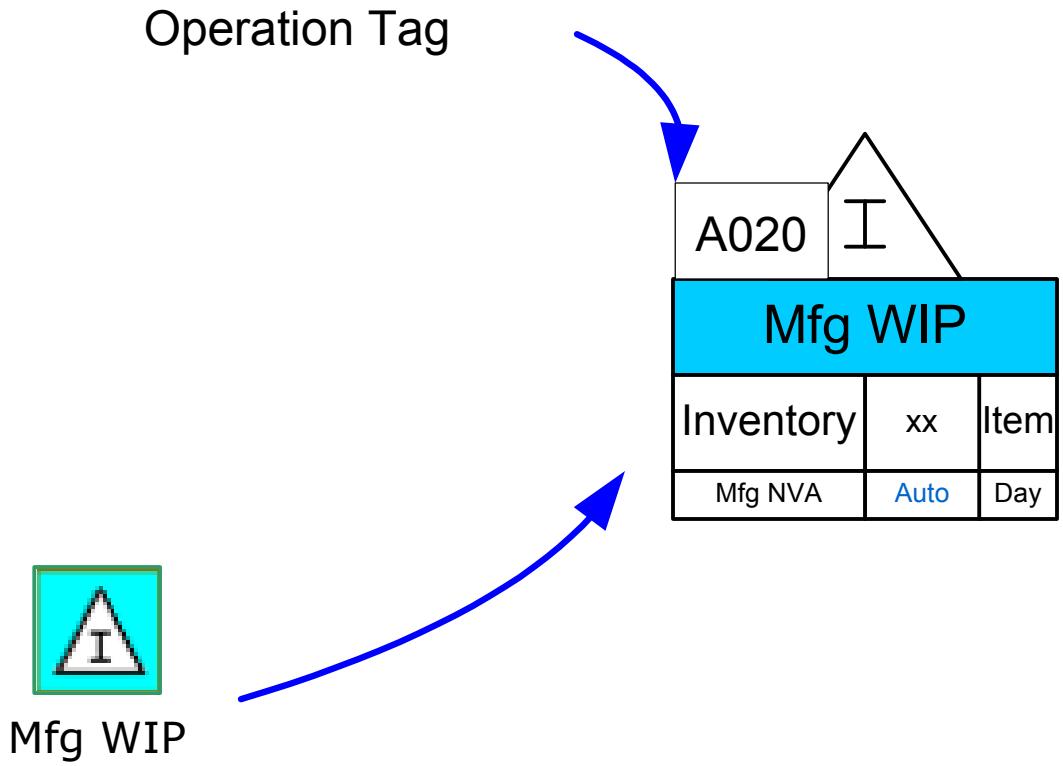
Avoid resizing shapes whenever possible. Shapes are designed to fit together and resizing a shape will make “fit” difficult and create extra work.

Text Editing

Double-click a shape to edit its text.

Tagged and Path Located Shapes

Some icons in the stencil have shapes that are pre-tagged via an “Operation Tag”.



When the shape is dragged onto the map its operation tag will “auto-number” to create a unique tag ID. You can double-click and change the ID but it MUST be unique on the map and it MUST be an alphabetic character followed by 3 numerals.

The charts in Quick MCT are plotted in tag alphabetic sequence order.

Data Shapes

Quick eVSM data shapes have 3 types of entries:

Shapes with xx in the center field indicate values that MUST be entered.

Cycle Time	x.xx	Min

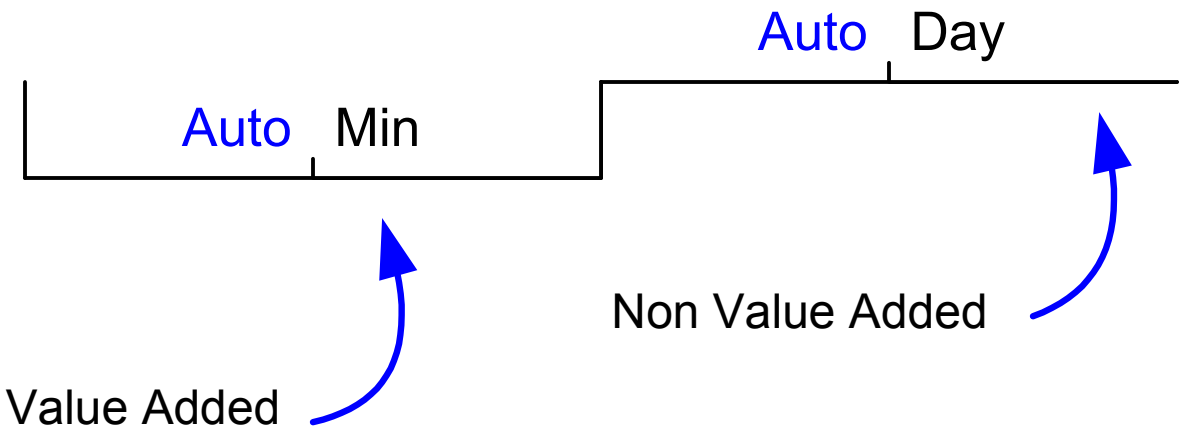
Some shapes have default values already entered. Override these when necessary.

Qty Per Cycle	1	Ord

Any shapes with 'Auto' fields should be left alone. They will be automatically calculated.

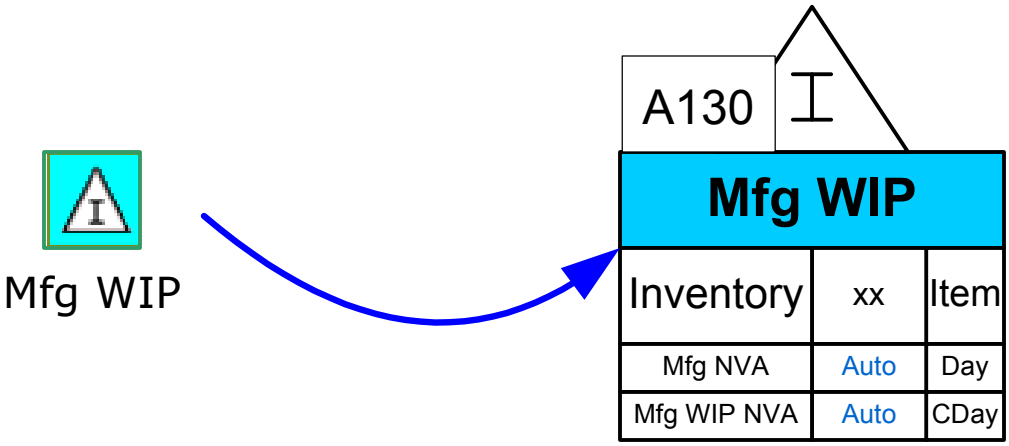
Cycle Time Per Item	Auto	Min
Activity Takt Time	Auto	Min

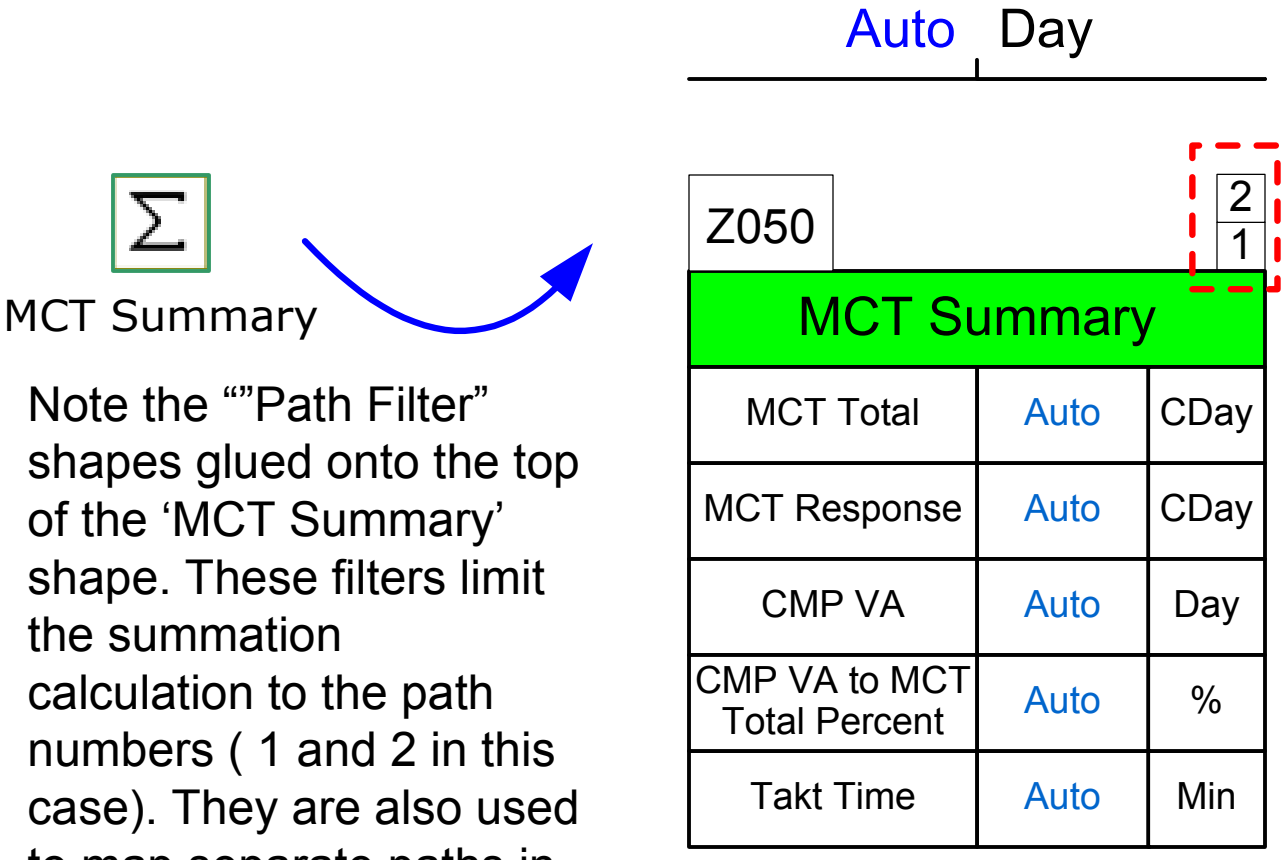
Most data shapes have a Name, Value, Unit composition. The exception are the 'Value Added' and 'Non Value Added' shapes where the name is implied.



Path Locater shapes

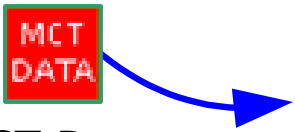
Every macro shape that has a Value Added (VA) or Non Value Added (NVA) data shape contribute to MCT Total and Response.





Note the “”Path Filter” shapes glued onto the top of the ‘MCT Summary’ shape. These filters limit the summation calculation to the path numbers (1 and 2 in this case). They are also used to map separate paths in the MCT Chart.

Drawing Your First Map With Quick MCT Stencil



MCT Data

Place the ‘MCT Data’ on the bottom left of the page.

Time Center

Fill out all the “XX” values in the units converters. In these converters time units prefixed with an “O” refer to office times, those with a “C” refer to calendar times and those without a prefix relate to production times

Wk	Day
xx	xx
Day	Hr

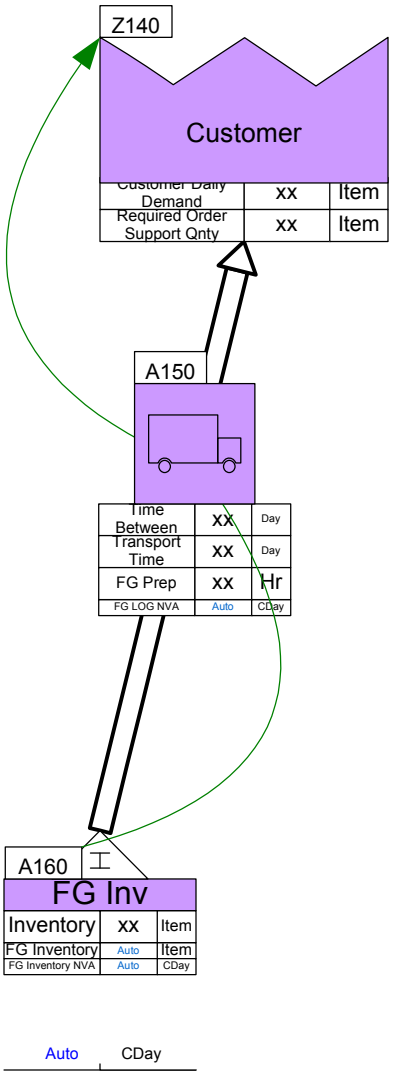
Wk	ODay
xx	xx
ODay	OHr

Wk	CDay	CHr	CMin	OHr	OMin	Hr	Min
7	24	60	60	60	60	60	60
CDay	CHr	CMin	CSec	OMin	OSec	Min	Sec

MCT FG

MCT FG

Start drawing the map by dragging out the MCT FG shape and placing it to the right of the page. Leave the “Auto” fields alone. These will be calculated later using the built-in MCT Equations. Fill in any “XX” values. On the customer shape the “Required Order Support Qnty” is used to determine whether Supplier Lead Time is included in the MCT Response. FG Prep in the Transport Block refers to any time the Finished Goods spend in warehouse and/or packing activity.

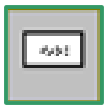


Planning Centers

Drag out the wait and activity shapes for Planning and fill in any values. . The “Activity Wait Time” field refers to the NVA time within an activity.

Planning Cont'd

A210		
Planning Activity		
Cycle Time	xx	OHr
Activity Wait Time	0	ODay
Pln VA	Auto	CMin
Pln NVA	Auto	CHr



Plan Activity

'Activity Wait Time' is any time within a process that an item is not being worked on (NVA time). 'Cycle Time' is the actual hands on time.

A290		
Planning Queue		
Wait	xx	OHr
Pln NVA	Auto	CHr

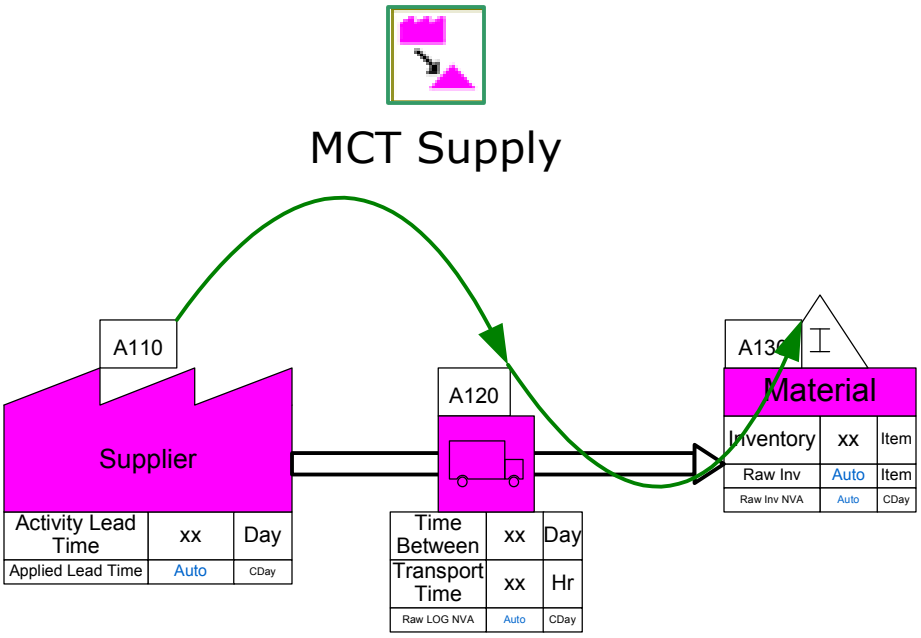
Plan Wait

'Wait' time captures waste due to queues.

SM (Supplier Management) Centers

Drag out the wait and activity shapes for SM and fill in any values. . The “Activity Wait Time” field refers to the NVA time within an activity.

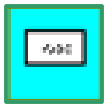
Drag out as many ‘ MCT Supply ‘ shapes as there are significant raw materials that you want to model on the map. Position each set vertically under the prior one as you drag it out and on the left of the drawing. You can easily make the page bigger if needed (See the eVSM Environment Chapter in the on-line user manual)



Mfg (Manufacturing) Centers

Drag out manufacturing WIP, Wait and Activity shapes to complete the VSM

Mfg WIP



Mfg Activity

Mfg Wait

Tagging the shapes in Sequence Order

Use the red “eVSM Tag Path Locater” toolbar button to set up tag defaults and then use the red “eVSM AutoTag” toolbar button to pick each set of activity shapes in sequence and apply tags to them. The MCT chart will be plotted in tag sequence. For help on either of these button search the online user manual.

Putting path numbers on shapes

Use the red “eVSM Tag Path Locater Defaults” toolbar button to set up path number defaults and then use the red “eVSM AutoPath” toolbar button to pick each set of activity shapes in sequence and apply path numbers to them and staring at the customer shape. The MCT chart will have one bar for each path number

eVSM Tag Path Locater Defaults

eVSM AutoPath

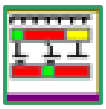
Calculating the “Auto” Fields

Click the “Quick eVSM” button in the eVSM toolbar. Give it time to calculate all the fields (can take a few minutes). You must click this button to rerun calculations when you change map data.

Quick eVSM

Drawing the MCT Chart

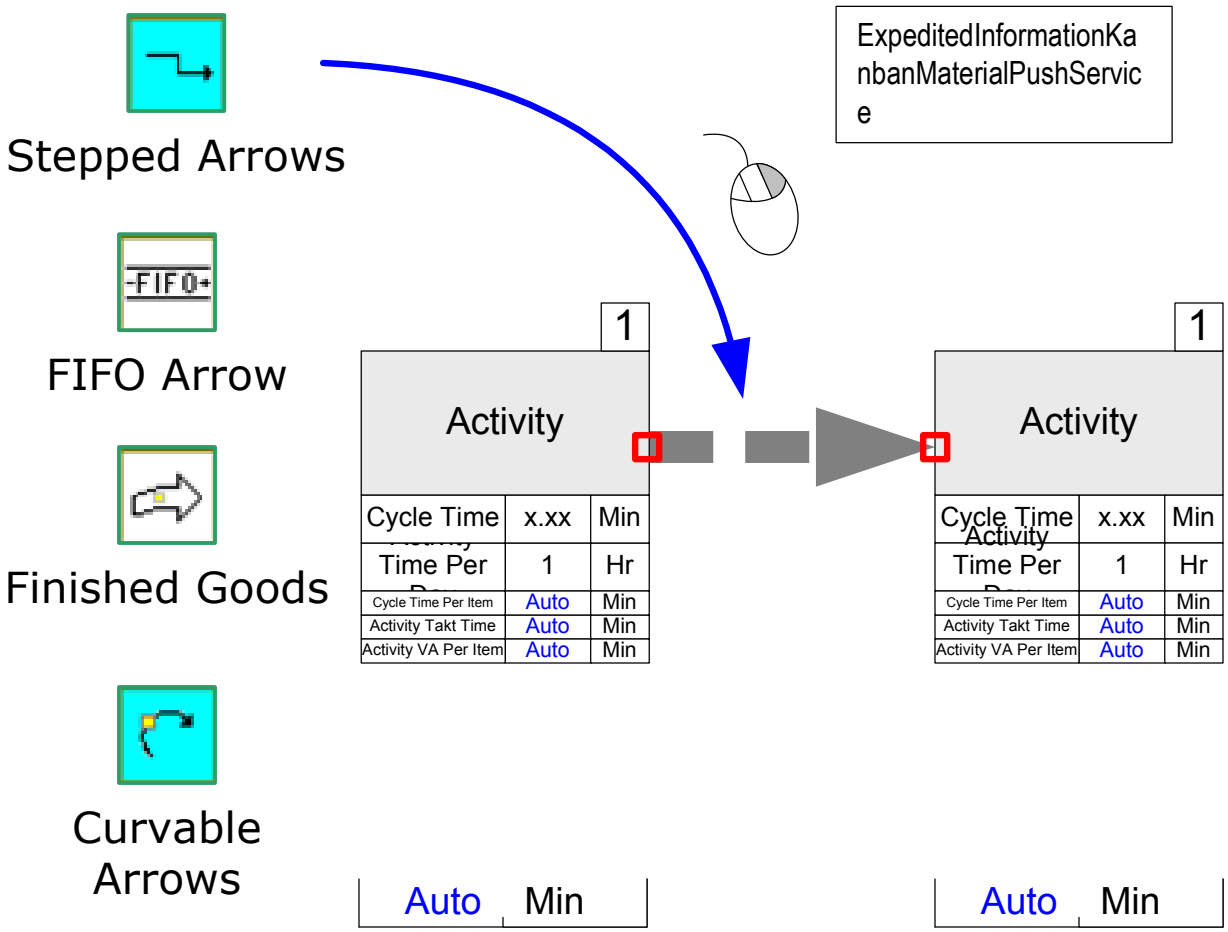
Drag out the ‘MCT Chart’ shape and attach “Path Filter” shapes to it from the stencil on the left of the page. These are glued to the bottom right corner. One path filter shape for each path number. Now right-click the chart shape and select the “plot” option

 MCT Map

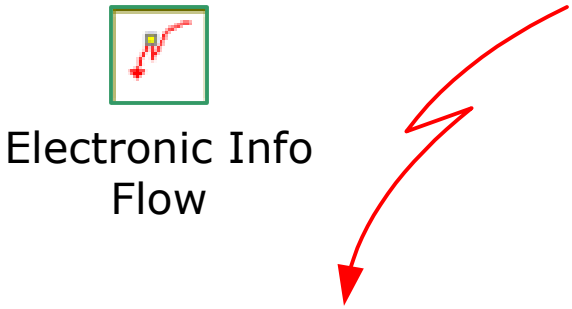
MCT Summary

Drag out the ‘MCT summary’ shape and attach a “path locater” shape to the top right of the activity. Double click the path locater shape to select the path you want a summary for. Only ONE path locater should be attached to the summary. Once this is done click the “eVSM Calculator” button in the toolbar to calculate the summary values

Connecting Activities With Arrows



One of the arrows above should be used to connect activities together to show the sequence. A Right-Click provides additional formats to show the type of flow (PUSH in the above example).



The red jagged arrow is used to represent electronic information flow (for example, an email of a forecast from a customer).

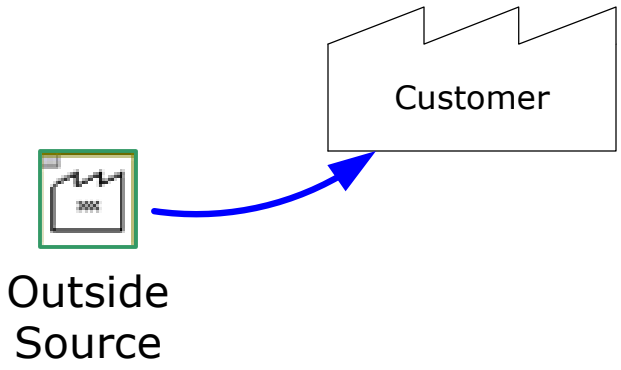
7. Drawing Value Stream Maps

Help Movies

These and other short movies about using eVSM are available at www.evsm.com/help

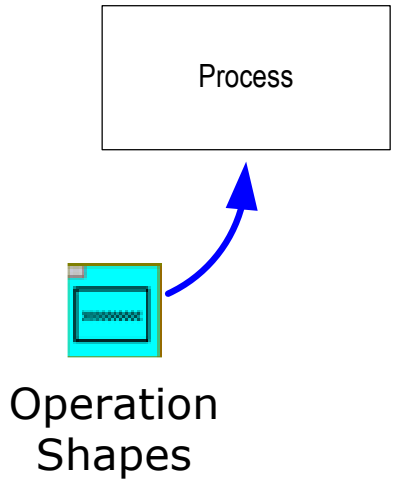
- Draw the Flow
- Add Map Data
- Fix common mapping problems
- Working with Variables
- Work with Variables
- Hyperlink Maps
- Insert Activities
- Create Map Key

Identifying Customers



Start the map at the customer end.

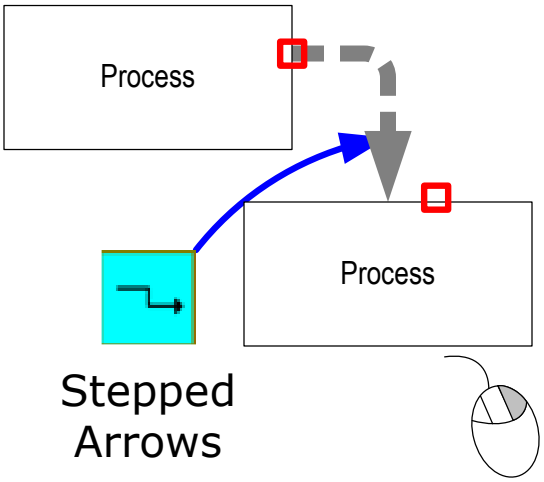
Identifying Operational Steps



Identify operations in the value stream and start at the customer end.

Use the Right Mouse button if you need to swap to another process shape.

Connecting Operational Steps with Arrows

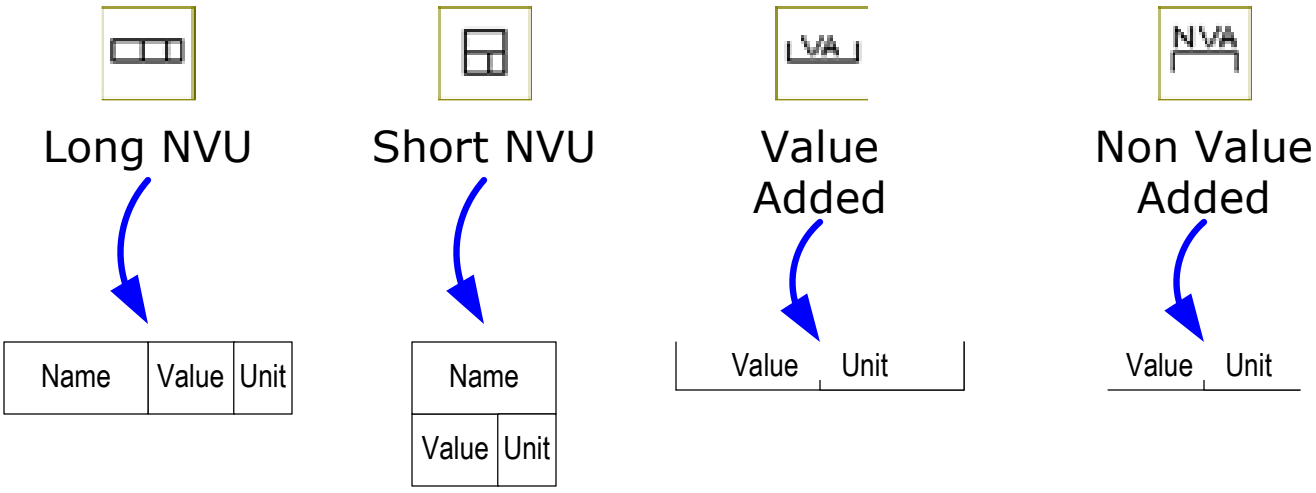


Drag and drop, then glue arrows to the operations or their data shapes for easy future modification of the map.

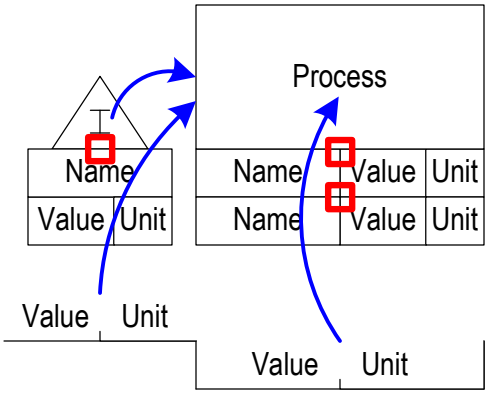
Use the Right Mouse button to swap to another arrow type (like this Push arrow)

Adding Operational Data

Value stream data which you may later want to use in calculations must be represented in eVSM data shapes. eVSM has the following data shapes:



Data shapes consist of two or three fields. To move or delete a data shape, you MUST click on the Value field. To edit any of the fields, simply double-click on it and let the program guide you through how you can change it.



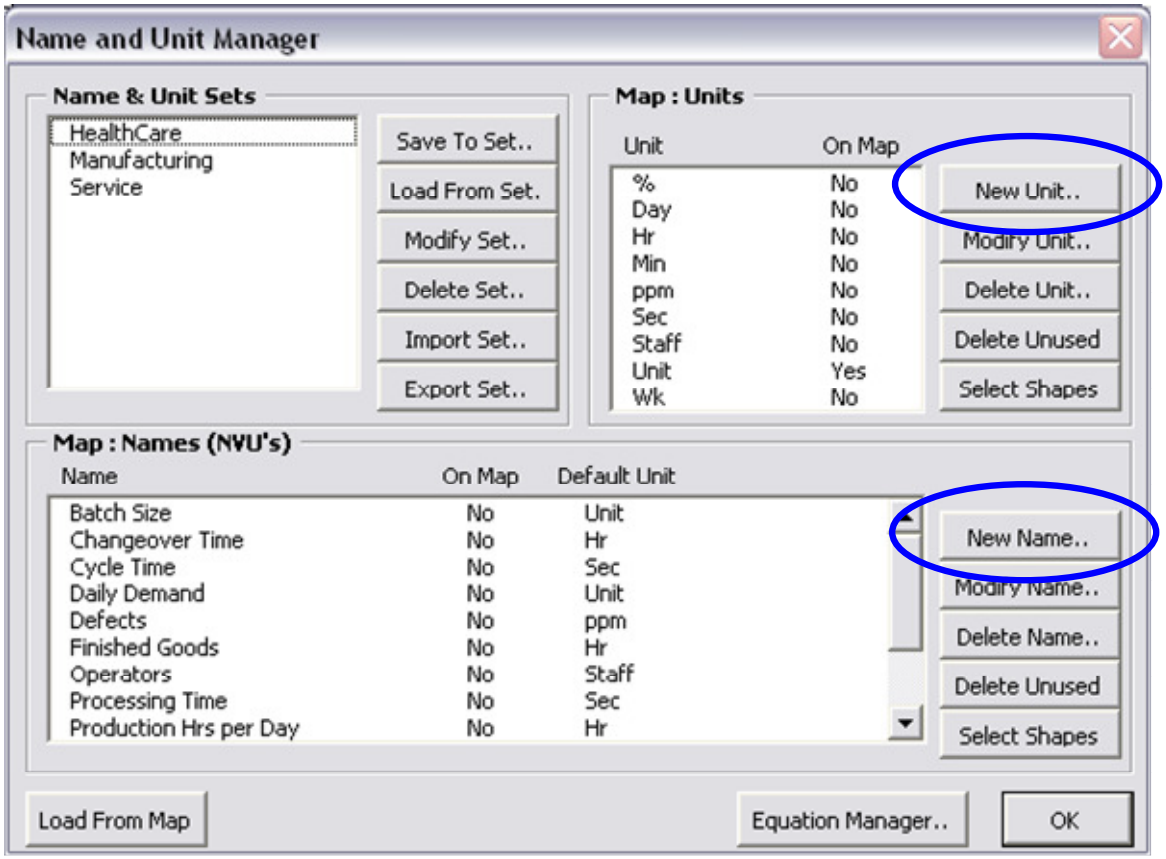
Data shapes must be glued directly, or via other shapes, to the activity they represent.

Variable Names and Units

To add variable names/units to the right mouse button (RMB) menu, follow these steps:

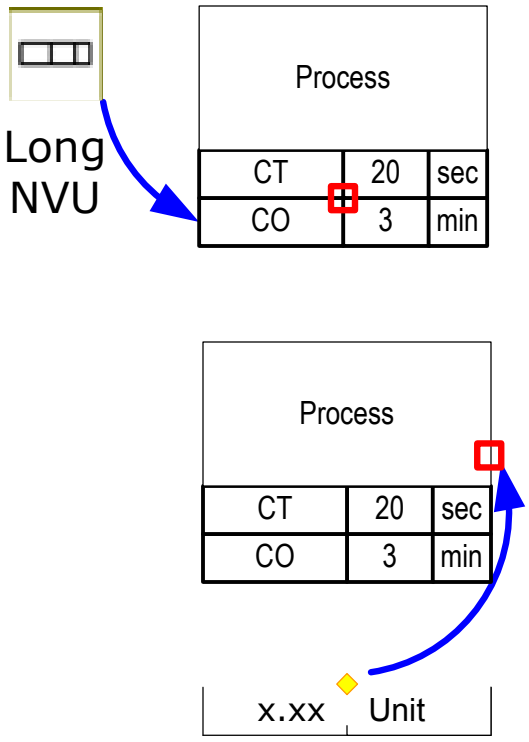
1. Click the following button in the eVSM Toolbar to open the Name & Unit Manager (NUM) dialog.

eVSM Name and Unit Manager



3. To add a new unit, click the “New Unit…” button.
4. All variable names must have a default unit. When adding new variable names, first make sure that the unit you wish to make the default for the new variable exists in the units list. Then, click the “New Name…” button and follow the prompts.

Adding Additional Data Shapes

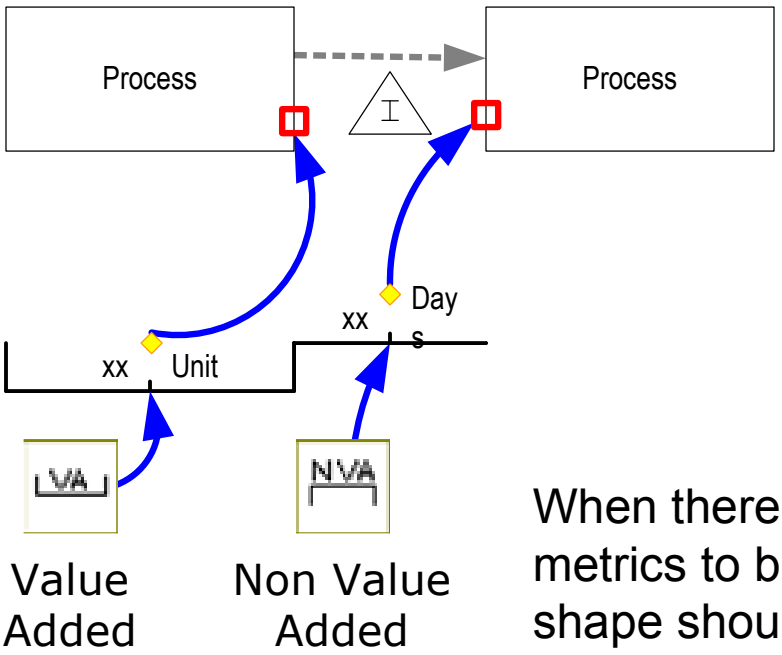


Additional data can be added to a process. Drag & glue new NVU to the bottom of existing NVU.

Data shapes that do not touch the operation or its data shapes directly should be associated with the operation by dragging the flying yellow connector and gluing it to the operation.

Note: Flying connectors should NOT be used where shapes are touching.

Representing VA & NVA data

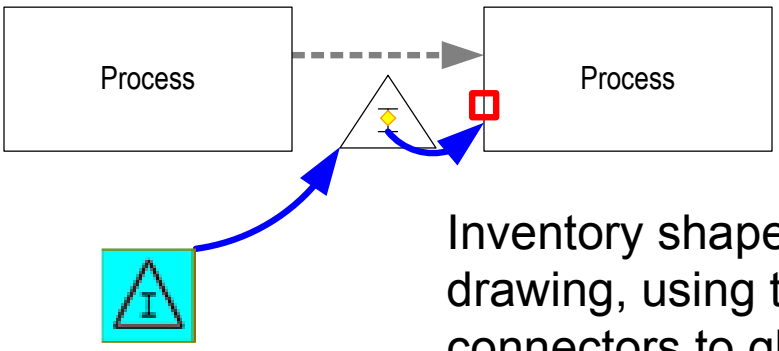


VA and NVA shapes are available to construct a timeline on the map.

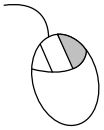
Glue these shapes to operational shapes with a flying connector.

When there are several VA/NVA metrics to be tracked, the Long NVU shape should be used instead of the specific VA, NVA shapes.

Representing Inventory & Queues



Inventory Shapes

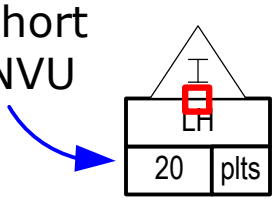


Inventory shapes can be placed on the drawing, using the flying yellow connectors to glue them to operations.

Use the Right Mouse button to swap to another inventory shape (Queue, In-tray etc..).

Representing Inventory Data

Short NVU

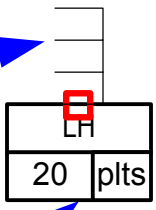


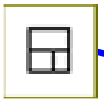
Drag out the NVU shape and glue it to the bottom of the inventory rectangle to document inventory type and quantity. Use additional triangles and NVU blocks for each inventory type.

Each inventory item associated with any one operation MUST have a different name.

Representing Supermarkets and Buffers

Supermarket

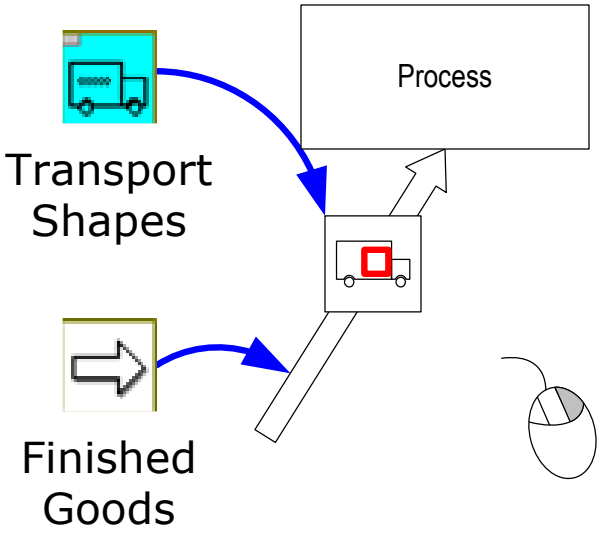




Short NVU

Supermarket and Buffer shapes work in a similar way to the Inventory Shape. Any data must be glued to the base of the shape

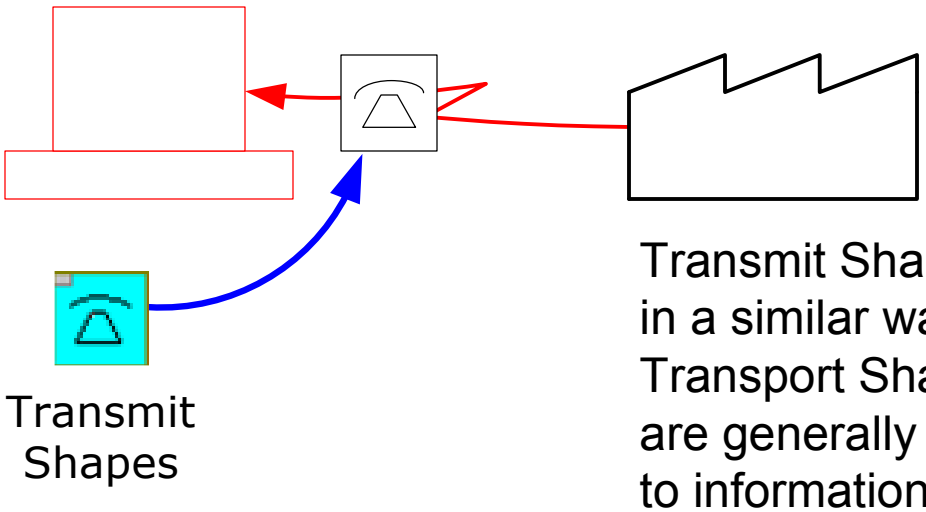
Representing Transport Method and Data



Drag out Transport Shapes and place them on the map or glue them to arrows. NVU shapes holding related variables can be attached to the base of the icons.

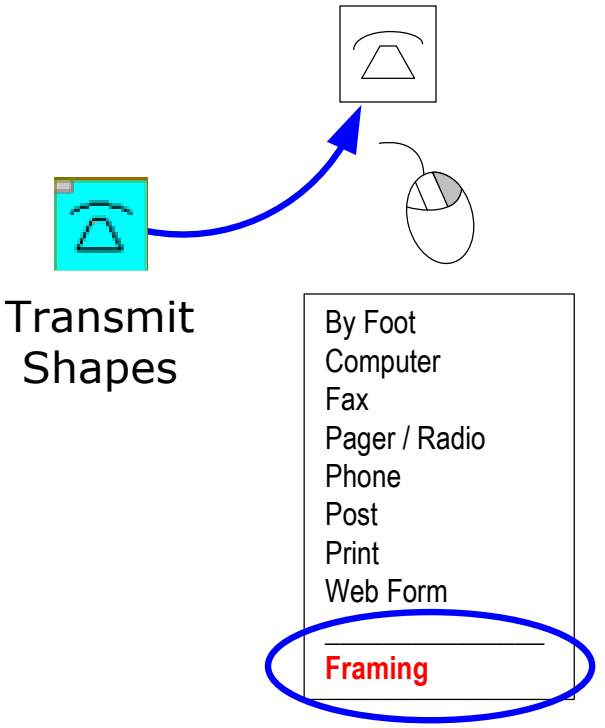
Use the Right Mouse button to swap to another transport type (Train, Helicopter etc..).

Representing Transmit Method and Data



Transmit Shapes work in a similar way to Transport Shapes and are generally applied to information flow.

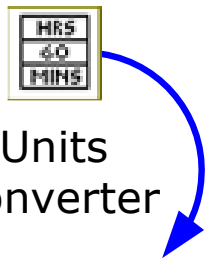
Frameless Transport & Transmit shapes



Right-click on a transmit or transport shape on the map to show alternate methods.

At the bottom of the list is a “Framing” option that allows the outer box around the shape to be turned on or off. When turned off the shape looks as below:

Using Unit Converters



Days	Hrs	Mins
15	60	60
Hrs	Mins	Secs

The Units Shape in the stencil is used to define conversion factors between units in each family. If a single variable on the map (like Cycle Time) has data values in different units (like Hrs and Mins) then conversion factors must exist linking these units.

This is an example of a “time” unit family. In eVSM the first letter of a unit name is sometime used as its abbreviation so its important that no two members of the unit family have the same first character. Note the use of “PSfts” instead of “Shfts” to avoid first letter conflict with the “Secs” unit.

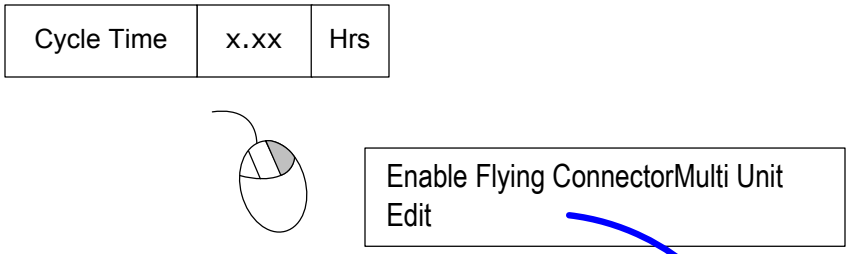
Multi-Unit Edit

This function allows you to enter and edit data values in a combination of related units. Available in Long and Short NVU's shapes only. Steps:

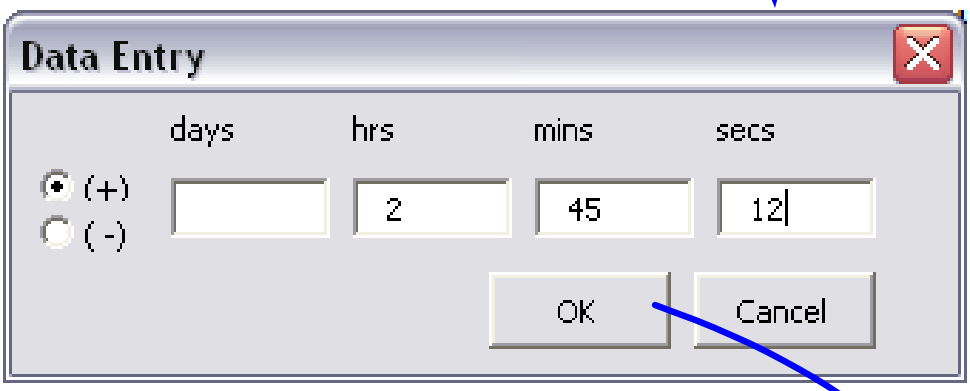
1. Setup Units Convertors for the related units.

Days	Hrs	Mins
16	60	60
Hrs	Mins	Secs

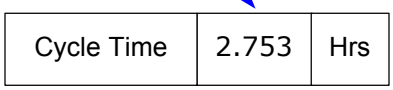
2. Right-mouse click on the Value field of the NVU and select the "Multi-Unit Edit" command.



3. Enter values in the Data Entry form.



4. See the result in the NVU.



Automove

Automove makes it easier to insert/remove activities from large map. This function consists of two buttons:

eVSM Link Activities

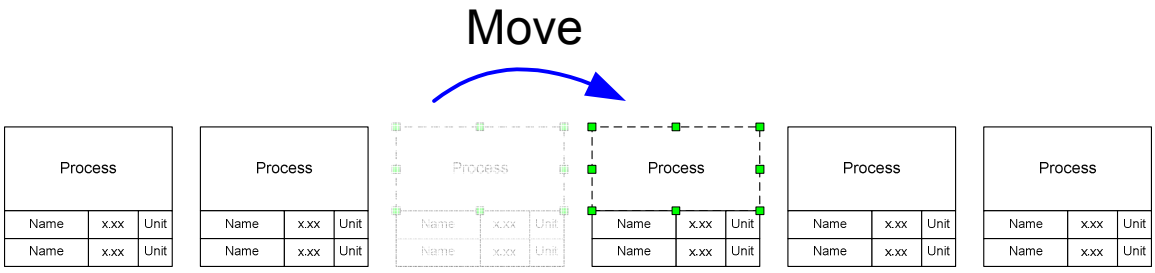
eVSM Unlink Activities

When the Link Activities button is clicked, all activity shapes in each flow line are linked (rigidly locked) to each other. In this mode, if any activity block is selected and moved, it gets unlinked from the upstream activity. All the downstream activities stay linked and move with it.

The Unlink Activities button is used to exit this mode. It is active when the shapes are in the linked mode.

Steps:

1. Click the eVSM Link Activities button.
2. Select and move activity downstream of where space needs to be created or removed.



3. Click the eVSM Unlink Activities button to exit Automove mode.

Autofix

Autofix corrects some common problems on maps. To run, click this toolbar button:

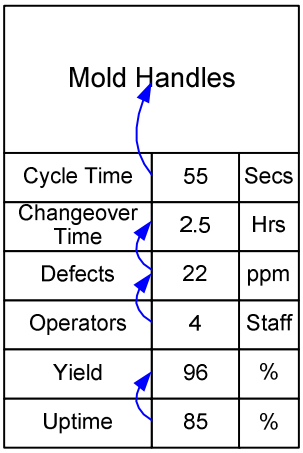
eVSM Autofix

Problems fixed by the Autofix function include:

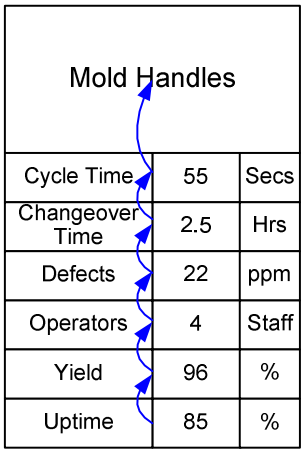
1. Removes hidden data shapes: sometimes when using copy/paste, multiple copies are created and duplicates are hidden under visible data shapes. Finding and removing these can be tedious, Autofix automatically deletes such duplicates.

2. Automatically glues data shapes and arrows based on proximity.

Before



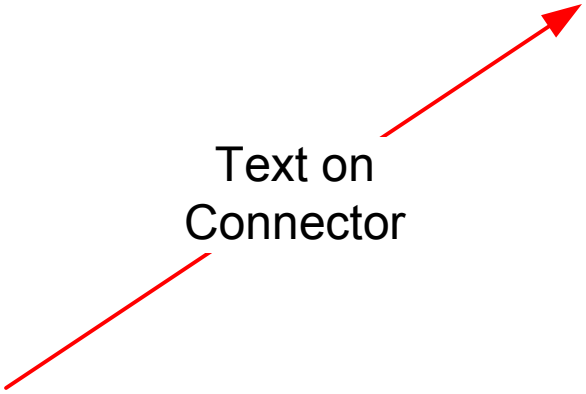
After



3. Works around the Visio glue limitation of 10+ shapes.

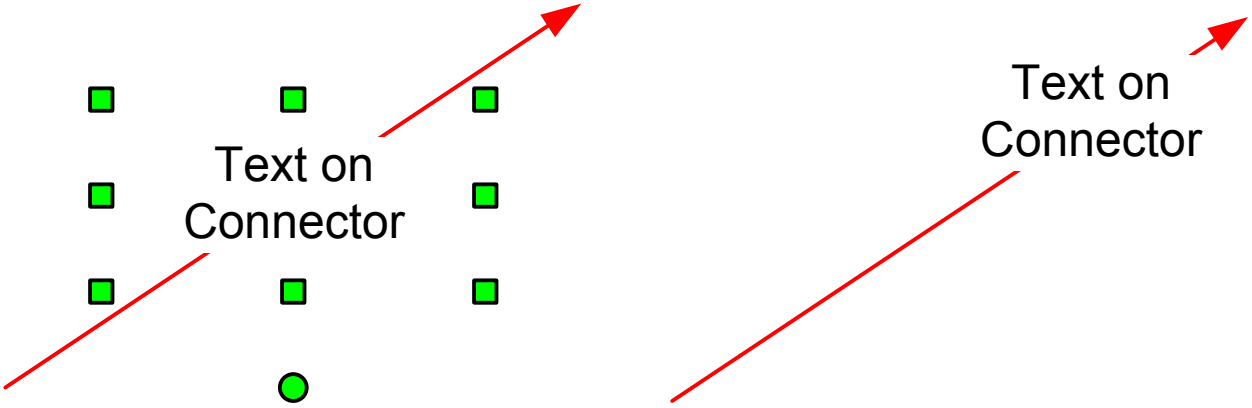
Manipulating Text on Connectors

Text can be added to any connector by double-clicking and typing.



The Visio Text Block Tool can be used to move the text position along the arrow. Note: The Text Box Tool is part of Visio, not eVSM tools, and can be found in the Visio menu.

Text Block Tool



Caution: Be sure to de-select the Text Block Tool when finished.

Creating Drill-Down Maps

eVSM Drill Down

The eVSM Drill Down button in the toolbar can be used to create a sub-page corresponding to an Operation Shape on the map. Pick the Operation Shape and then click the Drill Down button. A hyperlink is automatically created from the Operational Shape to the sub-page

Migrate Maps to eVSM v5

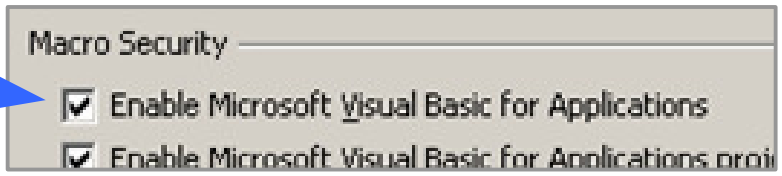
The following button in the toolbar will migrate eVSM v2, v3, and v4 maps to eVSM v5 format.

eVSM v5 Migration

Once a map is migrated to v5, it cannot be opened in older releases of eVSM.

If you need to open an eVSM v5 file in, say v3 (or any earlier version of eVSM) for viewing/printing purposes only, here is a workaround.

1. Start eVSM and switch VB Macros Off. Click “Tools > Options > Security”.
2. Switch “Off” this checkbox.

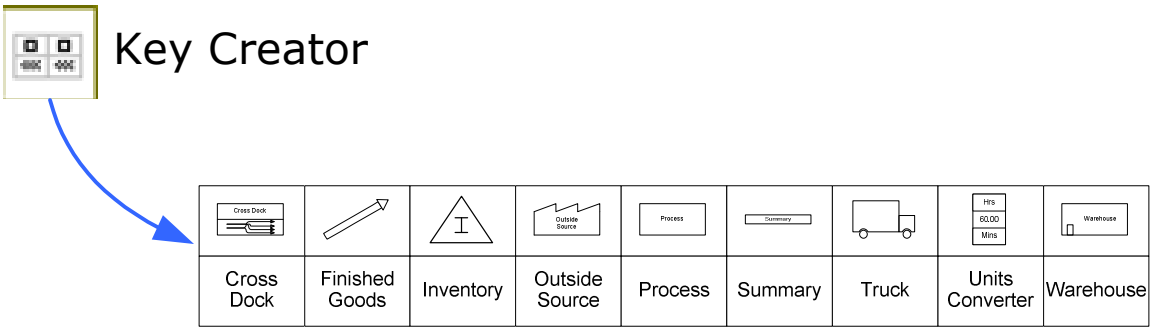


3. Exit Visio and open the eVSM v5 file.

Note: Remember to reverse Step 2 above when you wish to use eVSM v5 again.

Drawing a Key of Icons

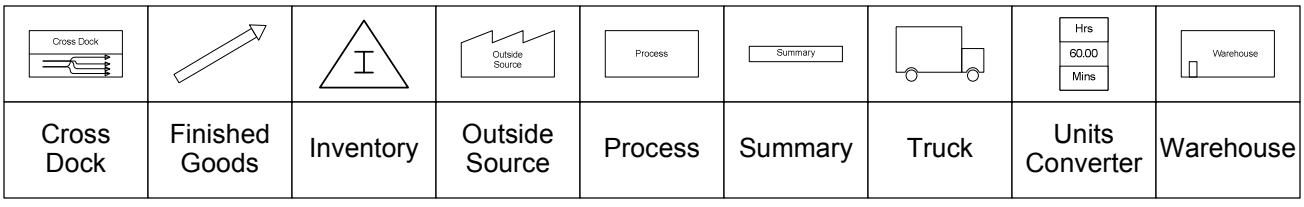
The eVSM Key Creator generates a key of the icons used on the current drawing.



Drag out the Key Creator icon and drop it in the space on your map where you want to display the key.

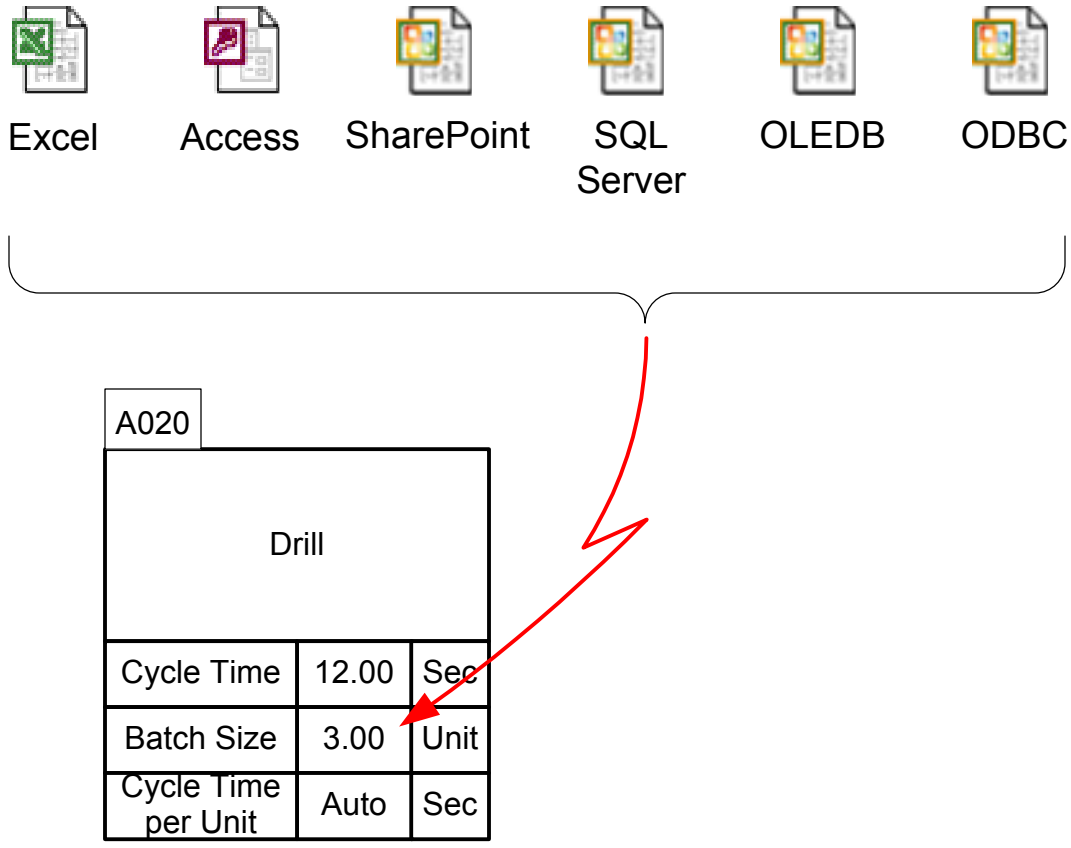
Note: This automatic function is restricted to eVSM shapes on the current drawing page. Some eVSM shapes, eg. data shapes such as long and short NVU's are intentionally omitted.

The Key display uses the eVSM Table shape. This allows you to delete/add columns (see how in the "Working with Tables" chapter) and also change the annotation of the key.



8. eVSM Data Link

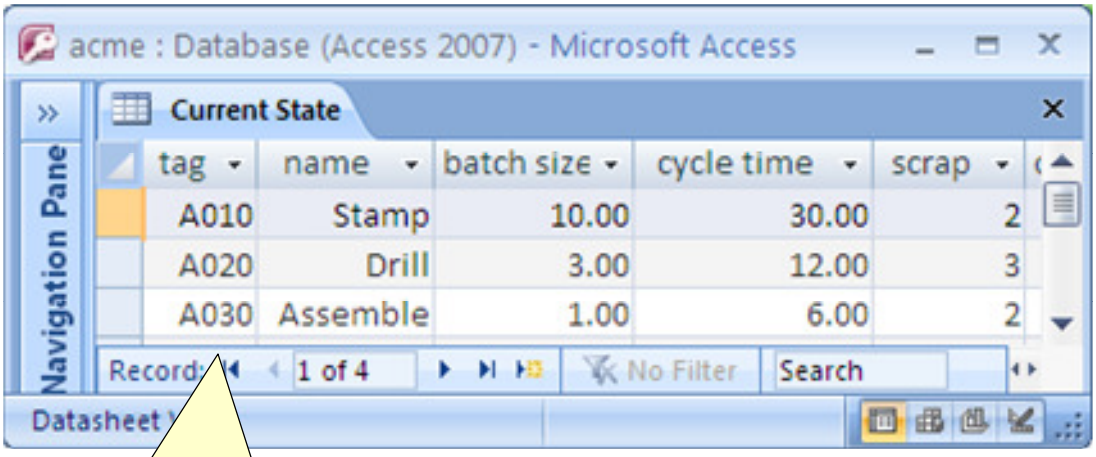
The eVSM Data Link function allows importing of data from external sources (such as databases) into eVSM data shapes.



Note: This function is only available with Visio 2007 Professional edition.

Steps to Link Data

1. Here is the data in Access:



This column contains the Operation Tag numbers which will match with the VSM

2. Here is the map:

We wish to import the Cycle Time and Batch Size from the database

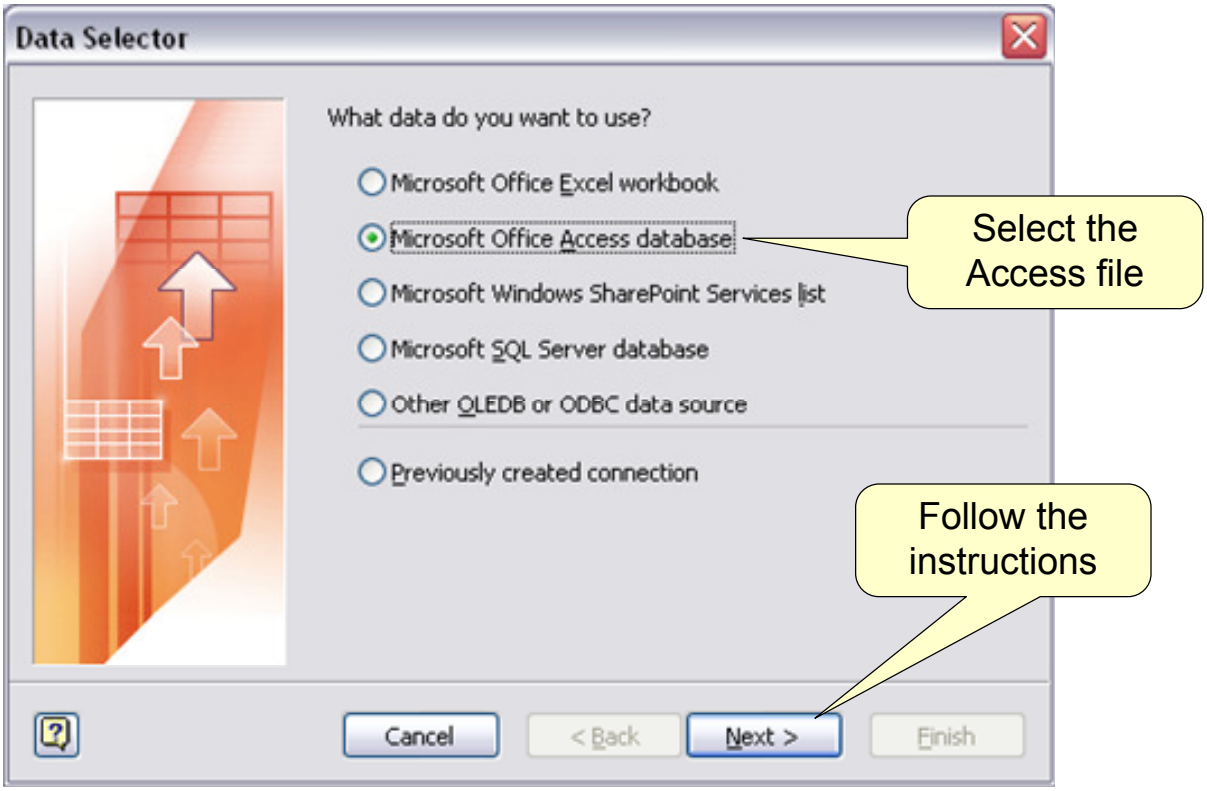
A020		
Stamp		
Cycle Time	x.xx	Sec
Batch Size	x.xx	Unit
Cycle Time per Unit	Auto	Sec

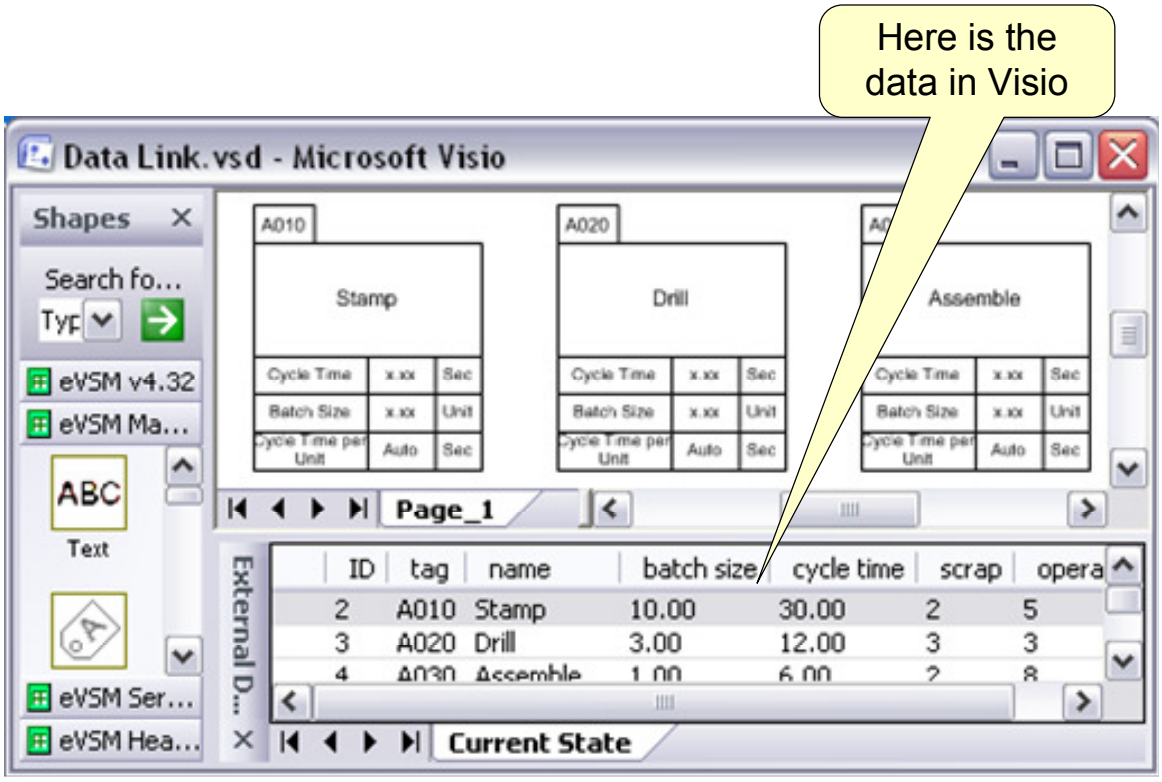
A020		
Drill		
Cycle Time	x.xx	Sec
Batch Size	x.xx	Unit
Cycle Time per Unit	Auto	Sec

A020		
Assemble		
Cycle Time	x.xx	Sec
Batch Size	x.xx	Unit
Cycle Time per Unit	Auto	Sec

Steps to Link Data (Cont'd)

3. In the Visio menus, click "Data > Link Data to Shapes…"

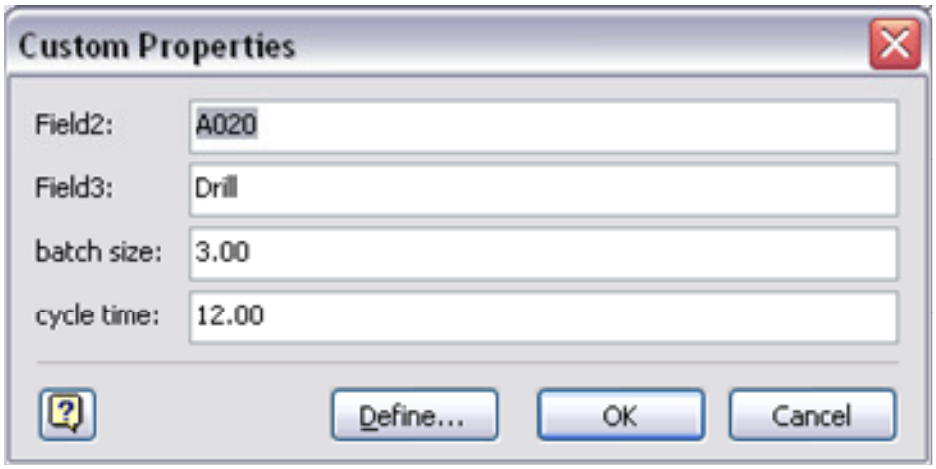




Steps to Link Data (Cont'd)

4. Click "Data > Automatically Link…", follow the wizard, and link the "tag" data column to the shape text for all shapes on page. The wizard allows you to filter out any unwanted columns and rows. This action will add shape data to the Operation Tags on the map.

   Here is an example:



5. Click the Data Link button in the eVSM Toolbar

eVSM Data Link

Here is the data in eVSM data shapes

A020		
Stamp		
Cycle Time	30.00	Sec
Batch Size	10.00	Unit
Cycle Time per Unit	Auto	Sec

A020		
Drill		
Cycle Time	12.00	Sec
Batch Size	3.00	Unit
Cycle Time per Unit	Auto	Sec

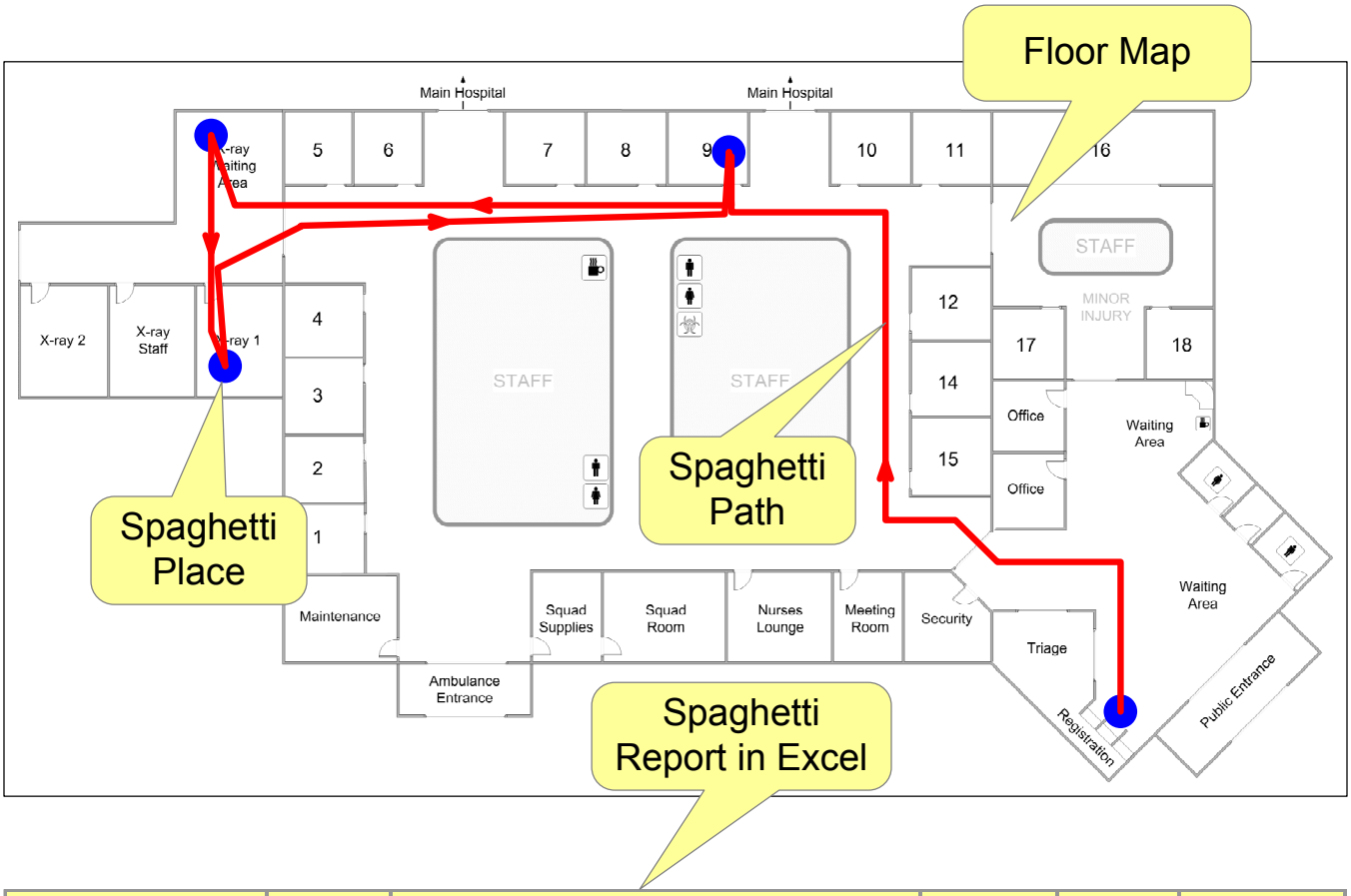
A020		
Assemble		
Cycle Time	6.00	Sec
Batch Size	1.00	Unit
Cycle Time per Unit	Auto	Sec

9. Drawing Spaghetti Diagrams

Help Movies

Draw Spaghetti Diagrams

Spaghetti Diagrams highlight wasted journeys and effort by visualizing motion between activity centers. The eVSM Spaghetti Diagram function allows you to draw paths on a floor plan (or any geographic map) and then export a Path Report to Excel.



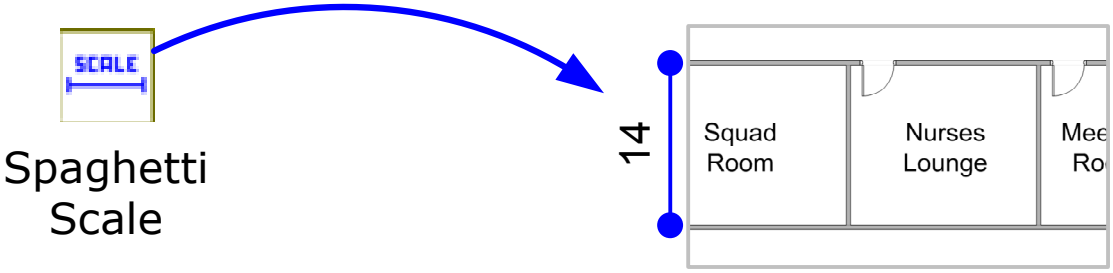
TO	COLOR	DESCRIPTION	DATE	TIME	DISTANCE
ER Bay 9		Patient assisted in wheelchair	3/3/2007	5:36pm	102
X-ray waiting area		patient escorted to X-ray waiting area	3/3/2007	6:20pm	58
X-ray Room 1		Patient to X-ray	3/3/2007	6:32pm	27
ER Bay 9		Patient returned to Bay 9	3/3/2007	6:45pm	62

Steps to Create a Spaghetti Diagram

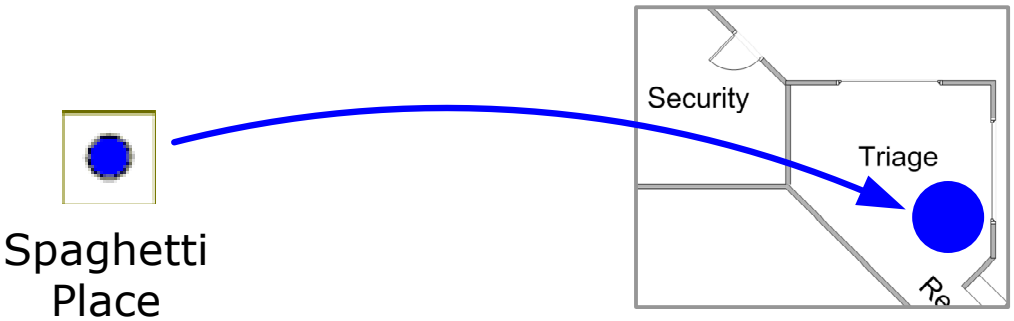
1. Draw or import a floor map. Visio can import most bitmap formats as well as AutoCAD drawings.
2. Click the Spaghetti Diagram button in the eVSM toolbar. This will open the eVSM Diagrams stencil.

Spaghetti Diagram

3. Drag out a Spaghetti Scale shape from the eVSM Diagrams, and stretch it out to exactly fit a known dimension on the map. The known dimension could be a map scale if available, or a floor dimension you have measured. Enter the actual dimension value on the scale shape.



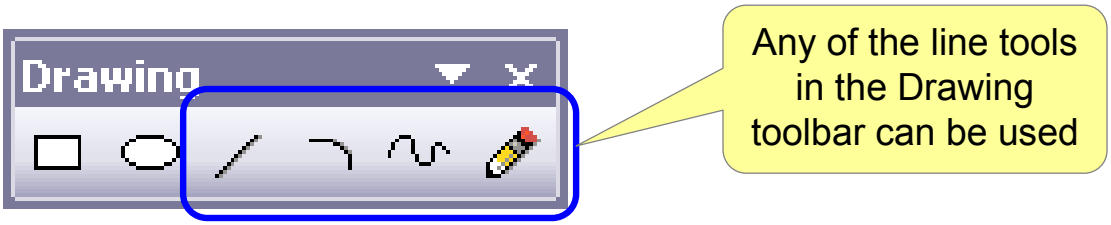
4. Define Activity Centers by dropping and naming a Spaghetti Place icon onto the diagram for each place.



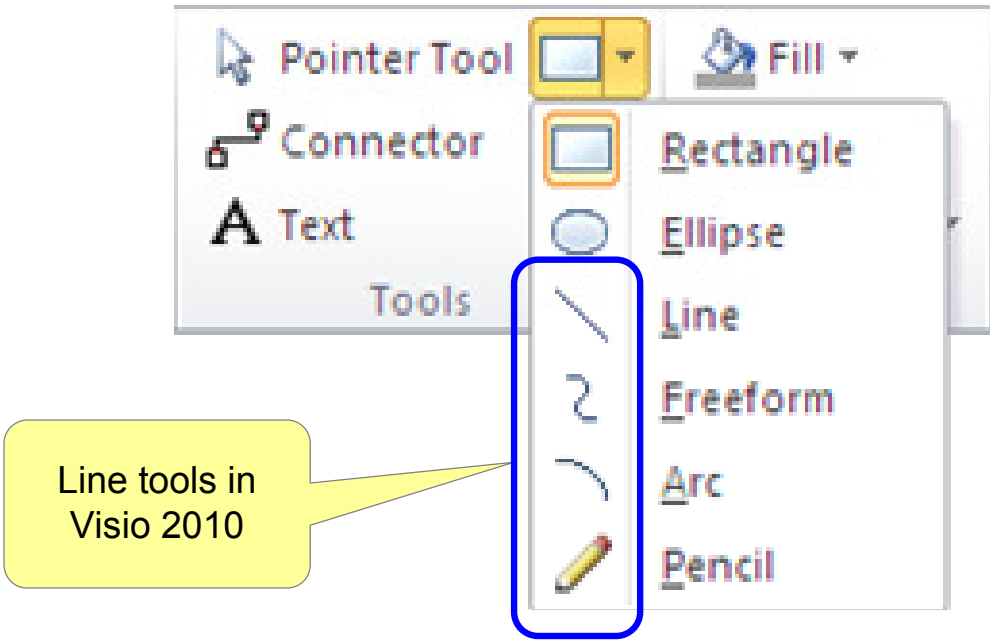
Steps To Create A Spaghetti Diagram (cont'd.)

6. Use the Visio line drawing tools to map the paths. You must ensure that each path starts and ends in a Spaghetti Place icon. You can set color and line thickness of the paths using standard Visio formatting.

   In Visio 2003/2007, the line drawing tools are in the Drawing Toolbar. This can be opened via the right-mouse menus on the Visio Toolbars.

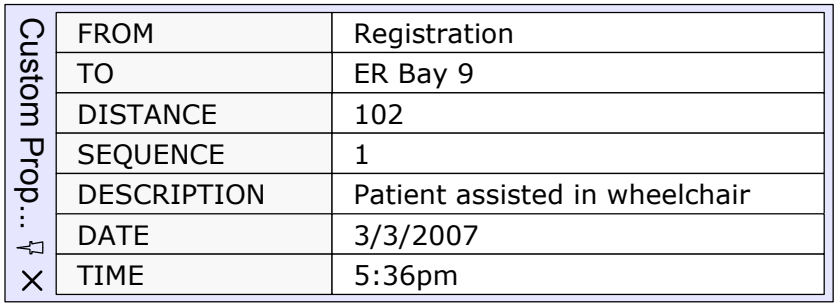


   In Visio 2010, the drawing tools are near the center of the "Home" ribbon.



7. Click the Spaghetti Diagram button again. eVSM will create a spreadsheet report of the paths.

8. Additional attributes can be added to the path lines via Visio Custom Properties. Select a path line, and click “View>Custom Properties”.



FROM	Registration
TO	ER Bay 9
DISTANCE	102
SEQUENCE	1
DESCRIPTION	Patient assisted in wheelchair
DATE	3/3/2007
TIME	5:36pm

The next time the Spaghetti report is generated, the path attributes will be transferred to the report.

Note that the Spaghetti Diagram button recreates the Excel report. It DOES NOT update it.

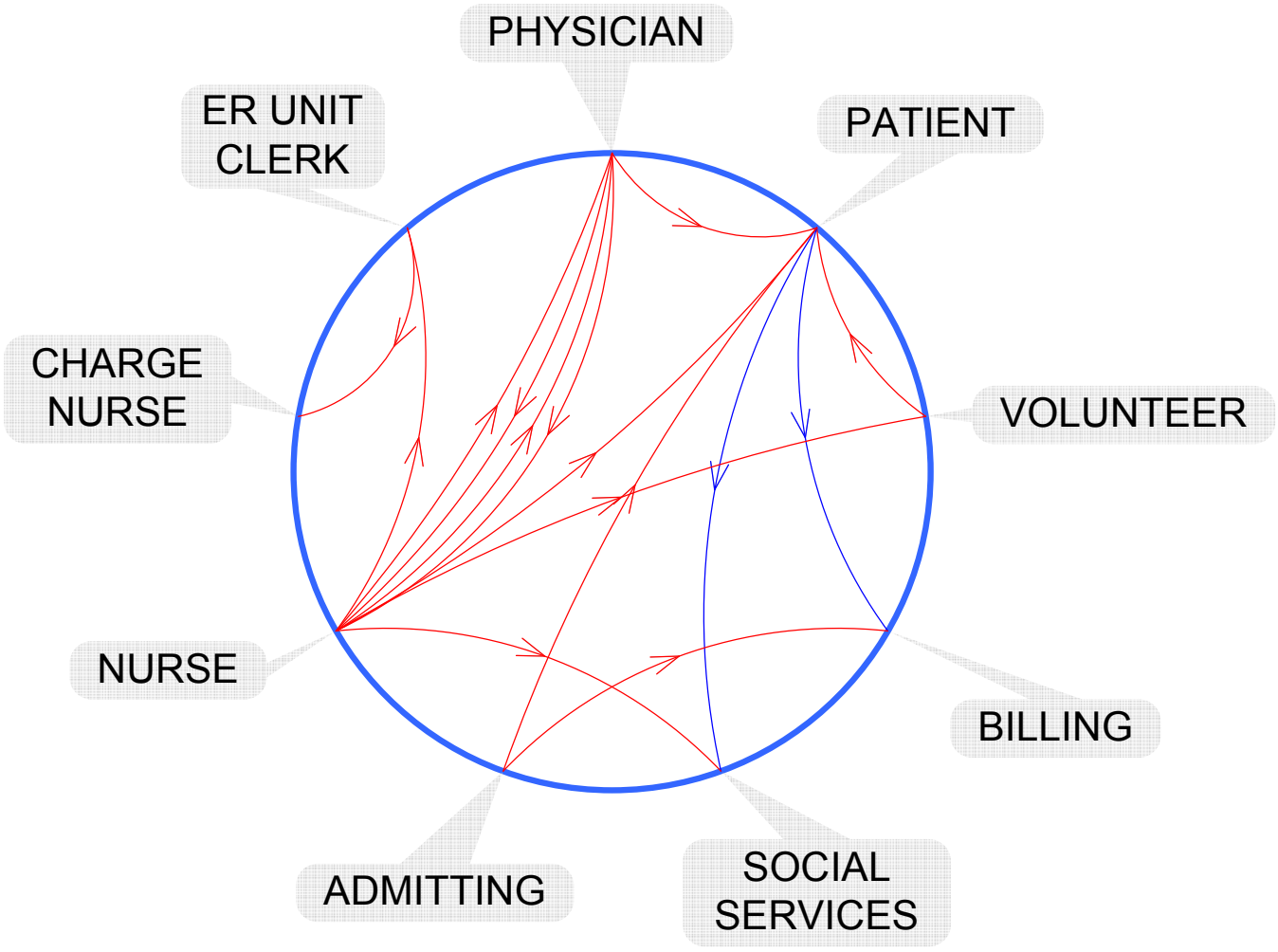
10. Drawing Communication Circles

Help Movies

Draw Communication Circles

Communication Circles allow you to visualize all the transactions in a given pathway or process.

Example:



Number Of Steps = 14

Steps to Generate a New Communication Circles

1. Follow a pathway or process and record all transactions in an Excel table in the following format. The first row in the spreadsheet must contain the column headers as shown. Save the Excel file anywhere on your machine.

FROM	TO
Registration	Patient
Registration	Nurse
Nurse	Patient
Nurse	Unit Clerk
Physician	Patient

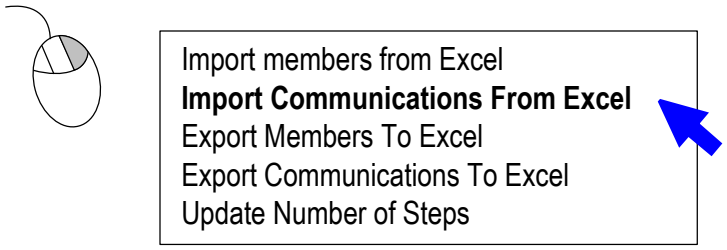
2. In eVSM, click the Communication Circle button in the eVSM toolbar. This will open the “eVSM Diagrams” stencil.

Communications Circle

3. Drag out a Communications Circle shape from the “eVSM Diagrams” stencil. This will create a blank circle on your drawing. Adjust the position and size of the circle to your liking.

Steps to Generate a Communication Circles (Cont'd)

4. Click the “Import Communications From Excel” command in the right-mouse-button menu of the circle.


Import members from Excel
Import Communications From Excel
Export Members To Excel
Export Communications To Excel
Update Number of Steps

5. Select Excel file and click OK. If you have more then one worksheet in the Excel file with communications data, then you will be prompted to select the worksheet to use.

Editing a Communication Circle

The communication circle may be edited directly in Visio where you can change, add, or delete circle members. You can also move, add, or delete Communication Paths. Communication Paths can also be color coded to show different types of communications (phone, fax, patient initiated, etc.).

After making changes, use the “Update Number of Steps” command in the right-mouse menu to update the number of steps.

Importing a Circle Members List

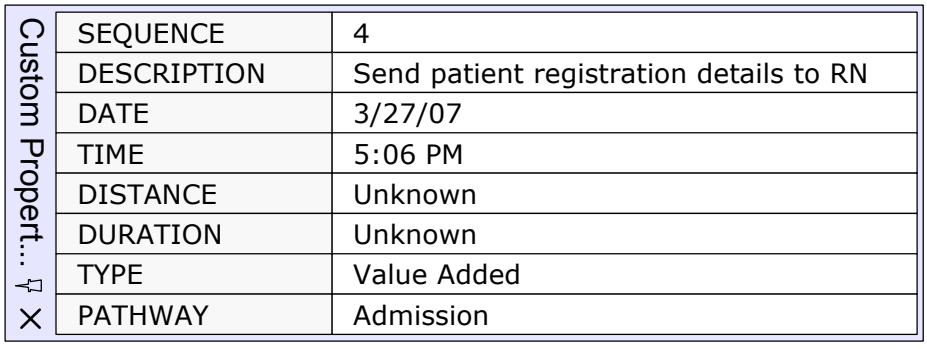
This is useful when the members are known but the transactions are not. Use the “Import Members from Excel” command in the right-mouse menu. The Excel data must be in the following format:

MEMBER	Y/N
Registration	Y
Patient	Y
Nurse	Y
Unit Clerk	N
Physician	Y

The “Y/N” column is needed to specify members to import.

Communication Path Properties

Custom properties are available on the Circle Path shape which may be used to capture additional details. To access these, right-mouse click on a path, then select “Shape>Custom Properties…".



The “Export Communications to Excel” command in the right mouse menu of the circle will export all of the above properties to Excel. The Communication Path line color is also transferred to Excel.

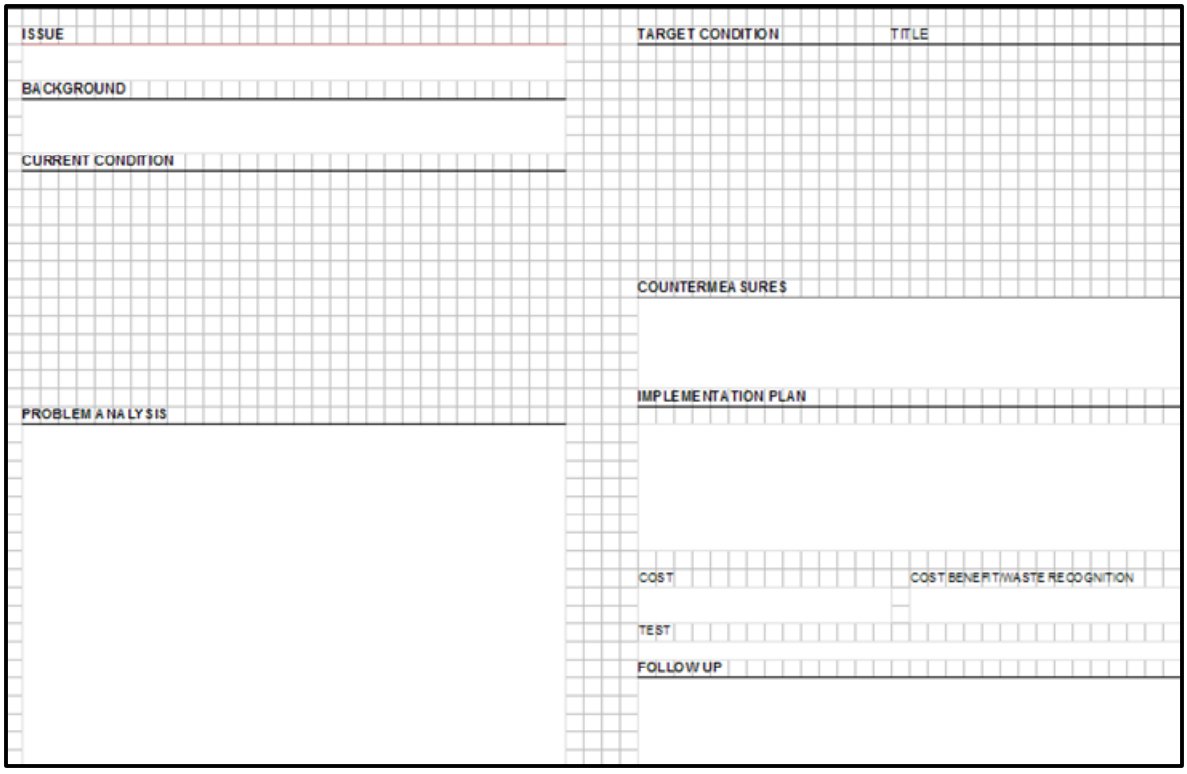
11. Creating A3 Reports

Help Movies

Create A3 Reports

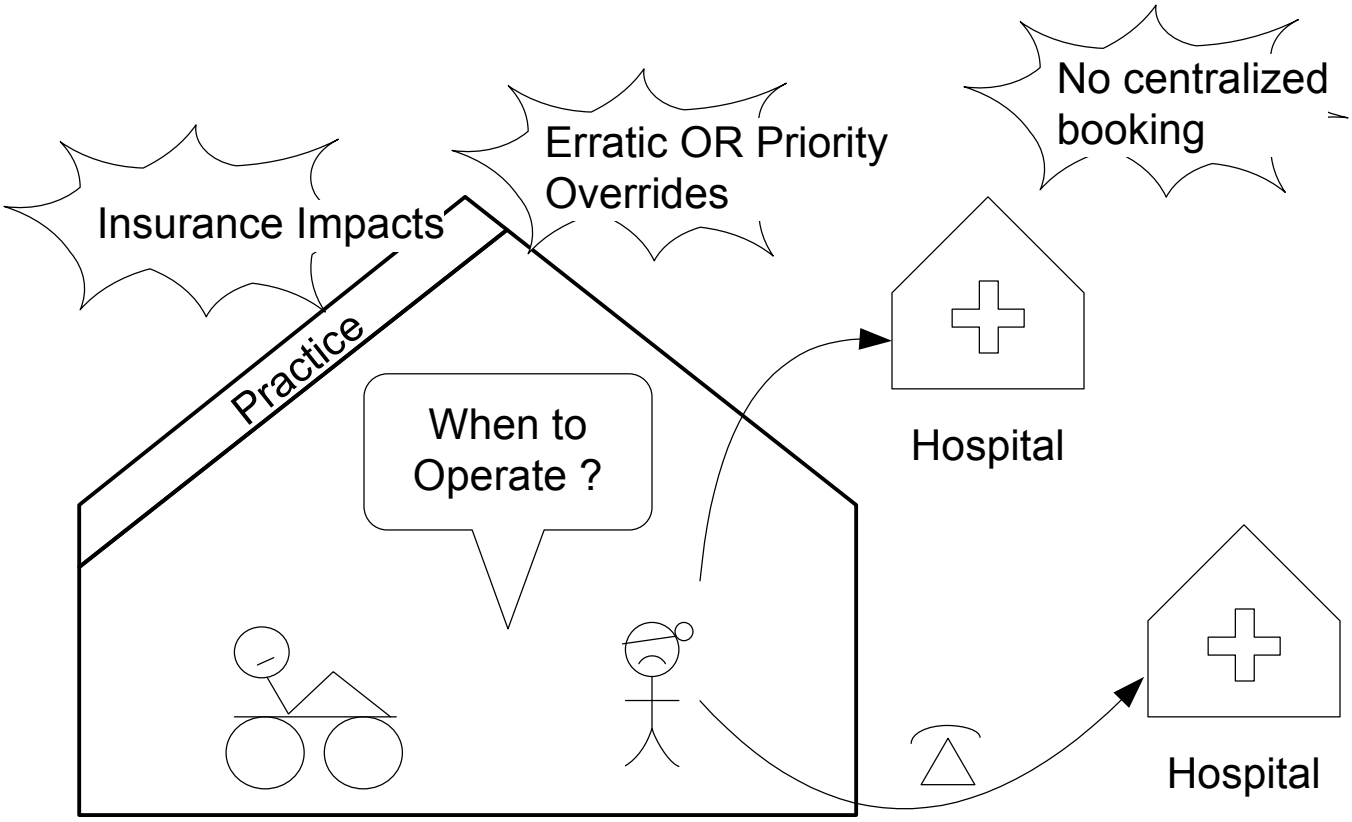
eA3 comes with a template (below) of an A3 report and a set of icons to make it easy to visualize the “Current Condition” and “Desired State” aspects of the sheet. Click the A3 toolbar button to create a new report.

eA3 Report



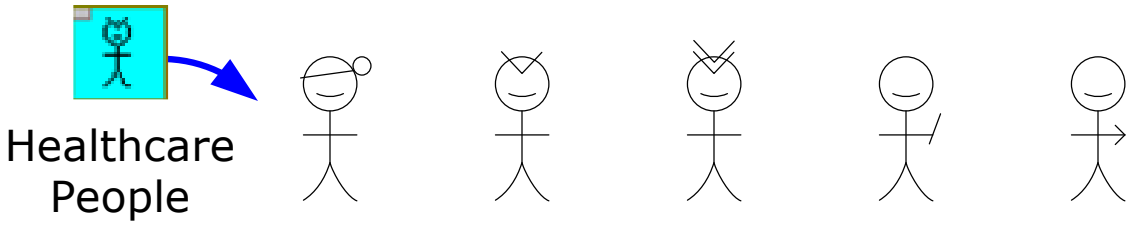
Zoom into the appropriate area and fill out the sheet.

Diagramming the Current Condition



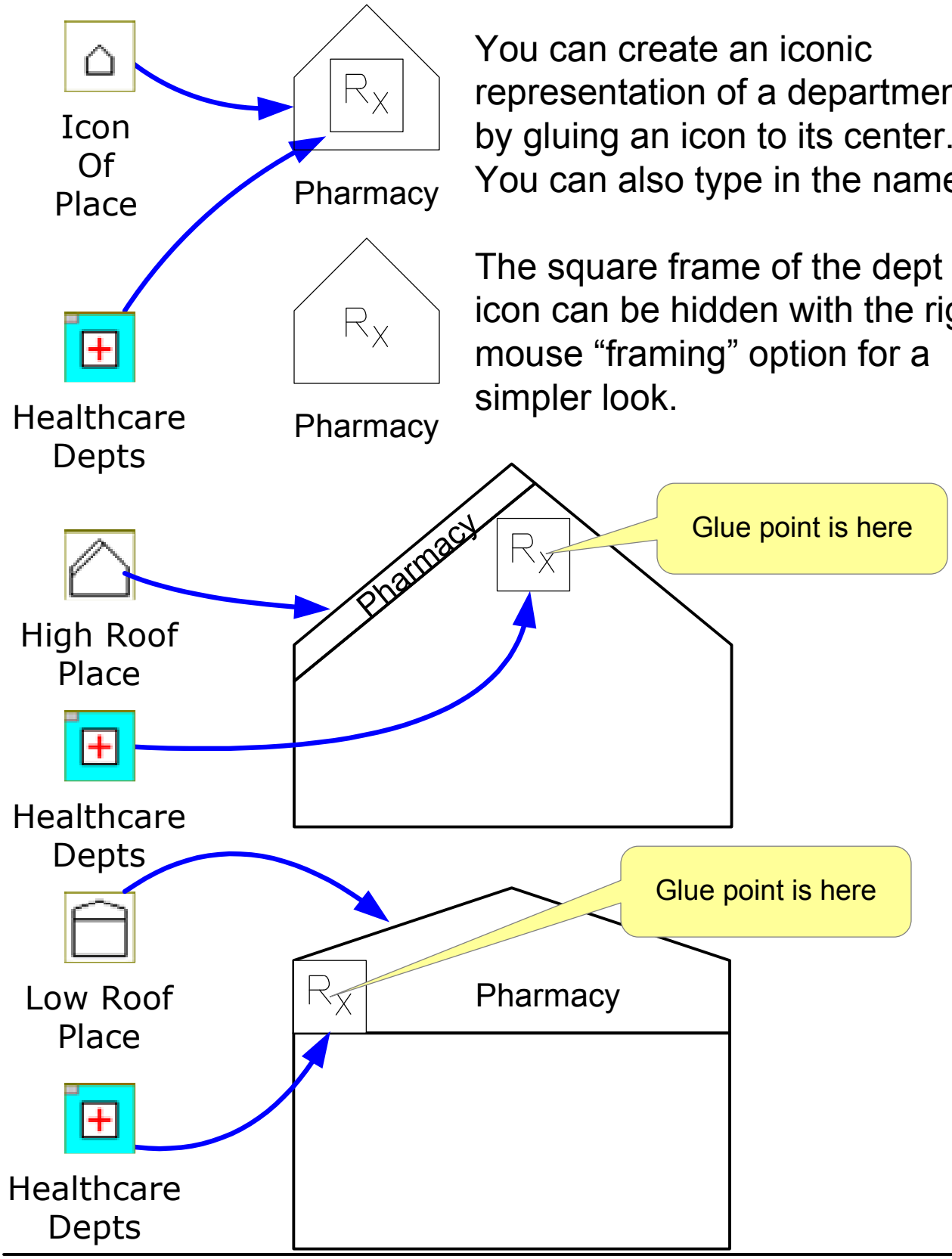
A typical “Current Condition” diagram is shown above and can be drawn very quickly in eA3 using the available icons.

Representing People



You can drag and drop a people shape from the stencil. You can change a person’s “role” by clicking the right mouse button and selecting the role (nurse, doctor, etc..). You can also set a person’s expression in the same way. People stacks are available for mfg, services and healthcare

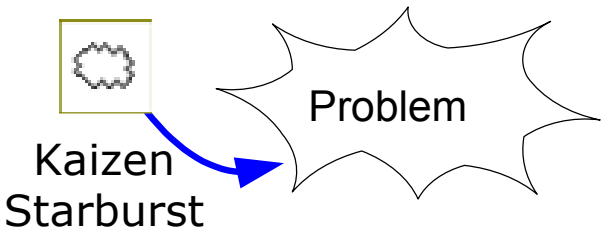
Representing Departments



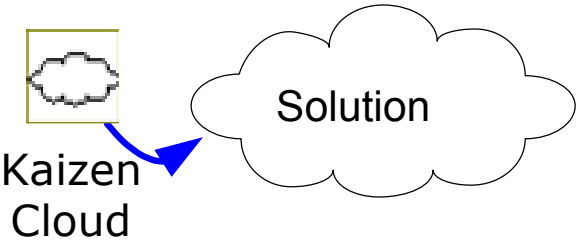
You can create an iconic representation of a department by gluing an icon to its center. You can also type in the name.

The square frame of the dept icon can be hidden with the right mouse “framing” option for a simpler look.

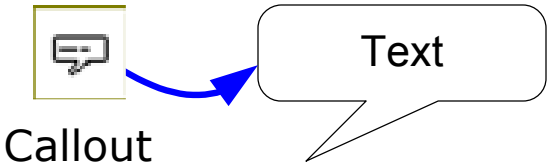
Problems, Solutions and Callouts



Typically used to identify problems



Typically used to identify solutions or positive attributes of the “Desired State”



Typically used to denote thoughts or verbal communication

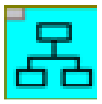
Icon Stacks

Healthcare People

Mfg People

Service People

Mfg Depts



Service Depts

Healthcare Items

Healthcare Depts

Transmit Shapes

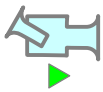
Transport Shapes

Tables and Gadgets in A3 Reports

See the “Draw” and “Gadgets” sections to see how these items can be used on an A3 Report.

12. Using Gadgets to Visualize Data

Help Movies



Visualize with Gadgets

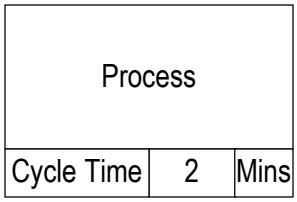
Any data on the map can be linked to visual gadgets that change in size and color with change in the data. Some gadget types are shown below:

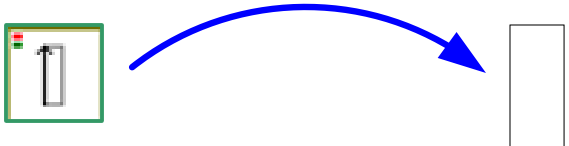
Bar Height Gadget	Sq. Area Gadget	Tr. Area Gadget	Slider Percent Gadget	Arc Angle Gadget	Line Tk Gadget	Curve Tk Gadget

Steps to Creating Gadgets

Each gadget has exactly one size parameter that can be tied to a data value on the map. Here's the typical means used to apply and manipulate gadgets:

1. Drag out the gadget and position it near the data value with which it will be associated (in this case the "Cycle Time").



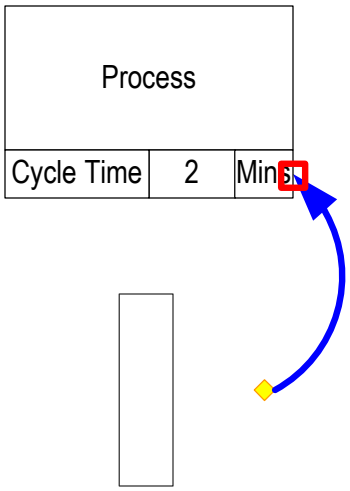


Bar Height Gadget

Steps to Creating Gadgets (Cont'd)

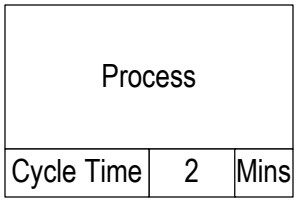
2. This system shape will be automatically dropped on the page the first time a gadget is used. If you copy a map to a new page make sure you also copy this shape because it is used to hold gadget data for the map.

   Drag and glue the gadgets yellow flying connector to the side of the NVU data shape (avoid gluing to the top or bottom of the data shape).

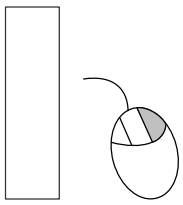


   Right click on the gadget and use the “Activate Gadget” option to create a new gadget collection. The collection name will be “Bar_Cycle Time”. The name is created from the gadget type and the data variable name.

3. A gadget can only belong to one collection. Each collection can only have a single type (eg. “Bar”) of gadget.

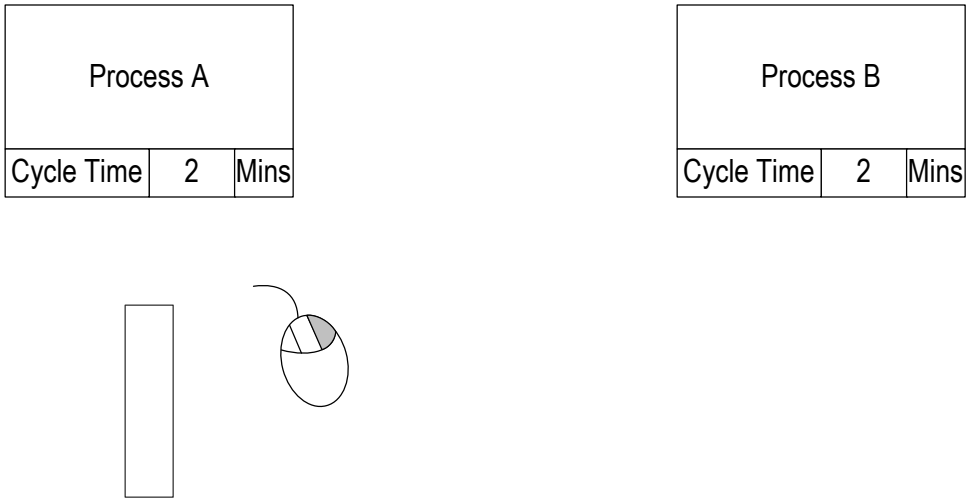


   You can change gadget scale factors and color code them by modifying the properties of the associated Gadget Collection.

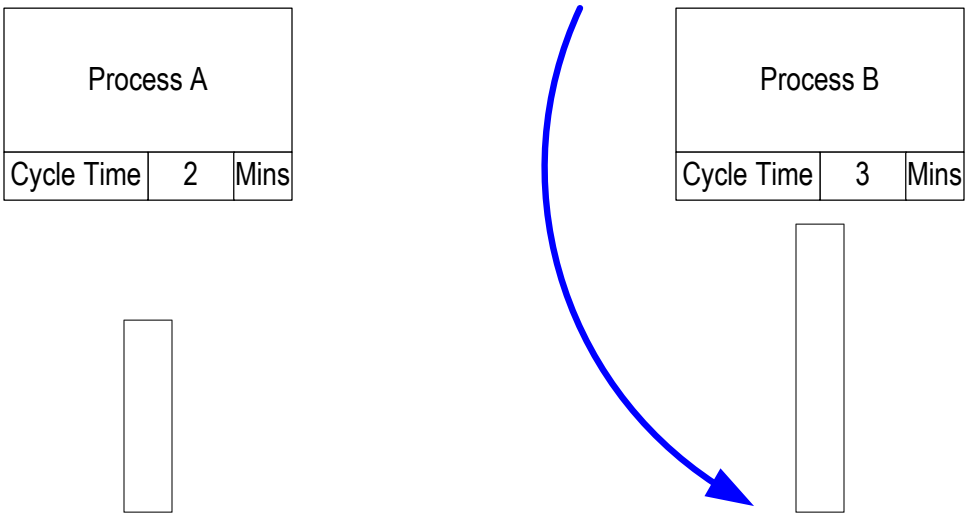


Steps to Creating Gadgets (Cont'd)

4. You can easily create additional gadgets tied to other instances of the same data on the map. Just click on the gadget and use the right mouse button to select “Create Gadgets By Example” to create the gadget for Process B below.



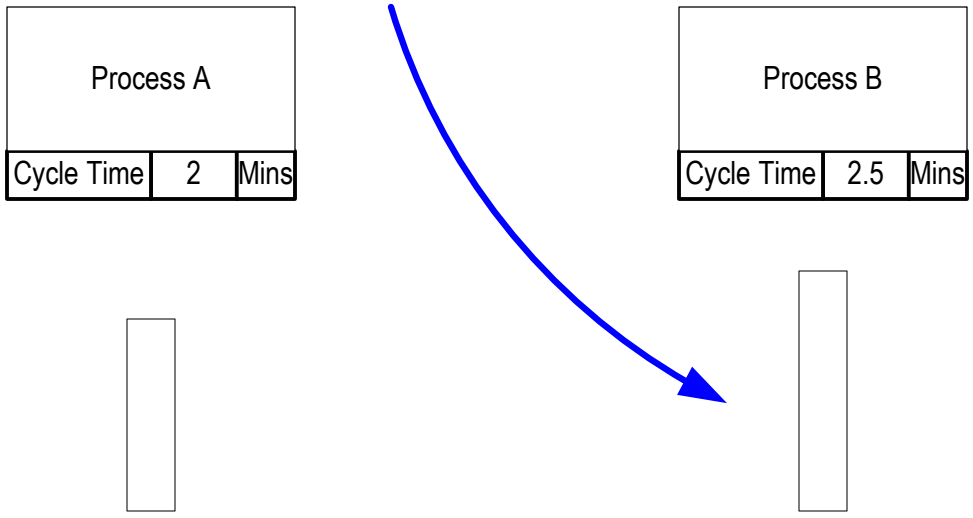
5. Note that the new gadget is automatically positioned, scaled and put into the same “Bar_Cycle Time” collection. If you do not wish to have new gadgets created for the whole map than select the original gadget, then sub-select an area of the map before using the “Create Gadgets By Example” menu.



Steps to Creating Gadgets (Cont'd)

6. You can update all the gadgets with changes to the associated data values by clicking the Update Gadgets button in the toolbar:

   eVSM Update Gadgets



   The diagram shows the impact of change from the data values for the Cycle Time.

7. If a gadget fails to update its usually because it is unglued from the data or has not yet been activated. Problem gadgets can be highlighted using the “Gadgets Check On/Off” button on the toolbar.

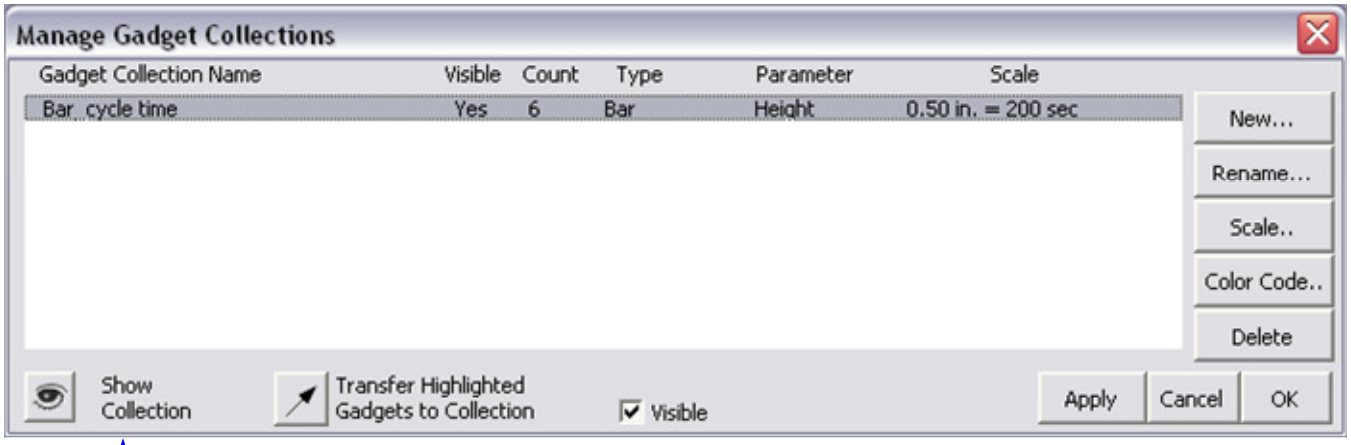
   eVSM Gadgets Check On/Off

8. To modify a gadgets scale factor or to color code it you need to change the properties of its associated collection. Right mouse click on the gadget and select “Manage Gadget Collections”

Managing Gadget Collections

9. Gadget collections can also be accessed via the toolbar button:

eVSM Manage Gadget Collections



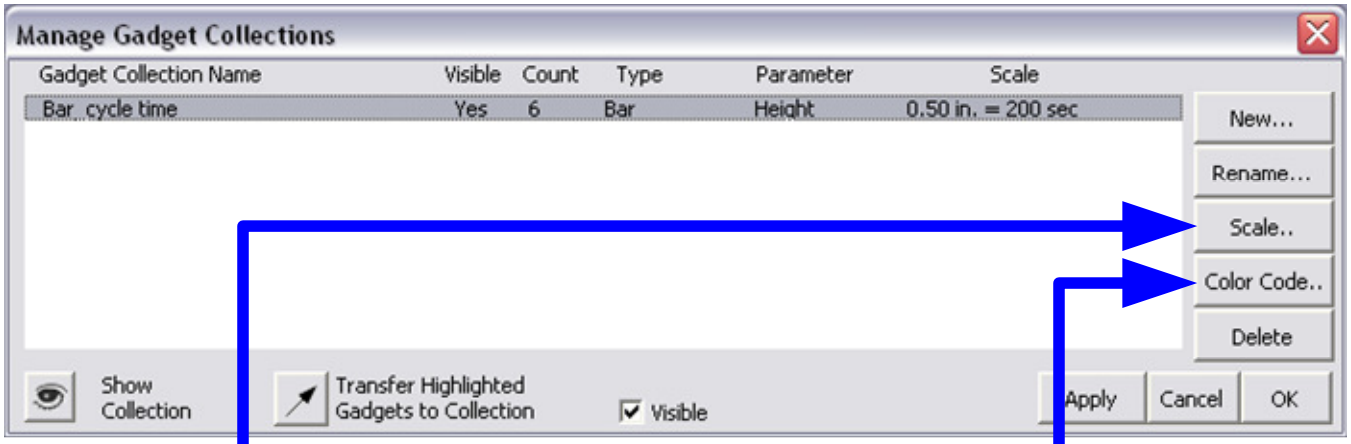
Select a collection from the list and click this button to select/highlight any gadgets on the map that belong to it

To transfer gadgets into a collection, first pre-select them, then select the target collection from the list and click this button.

A gadget can only belong to one collection so it is removed from its existing collection upon transfer

Also, a gadget can only be transferred to a collection that has the right gadget type (eg. “Bar”)

Modifying and Color-Coding Gadgets



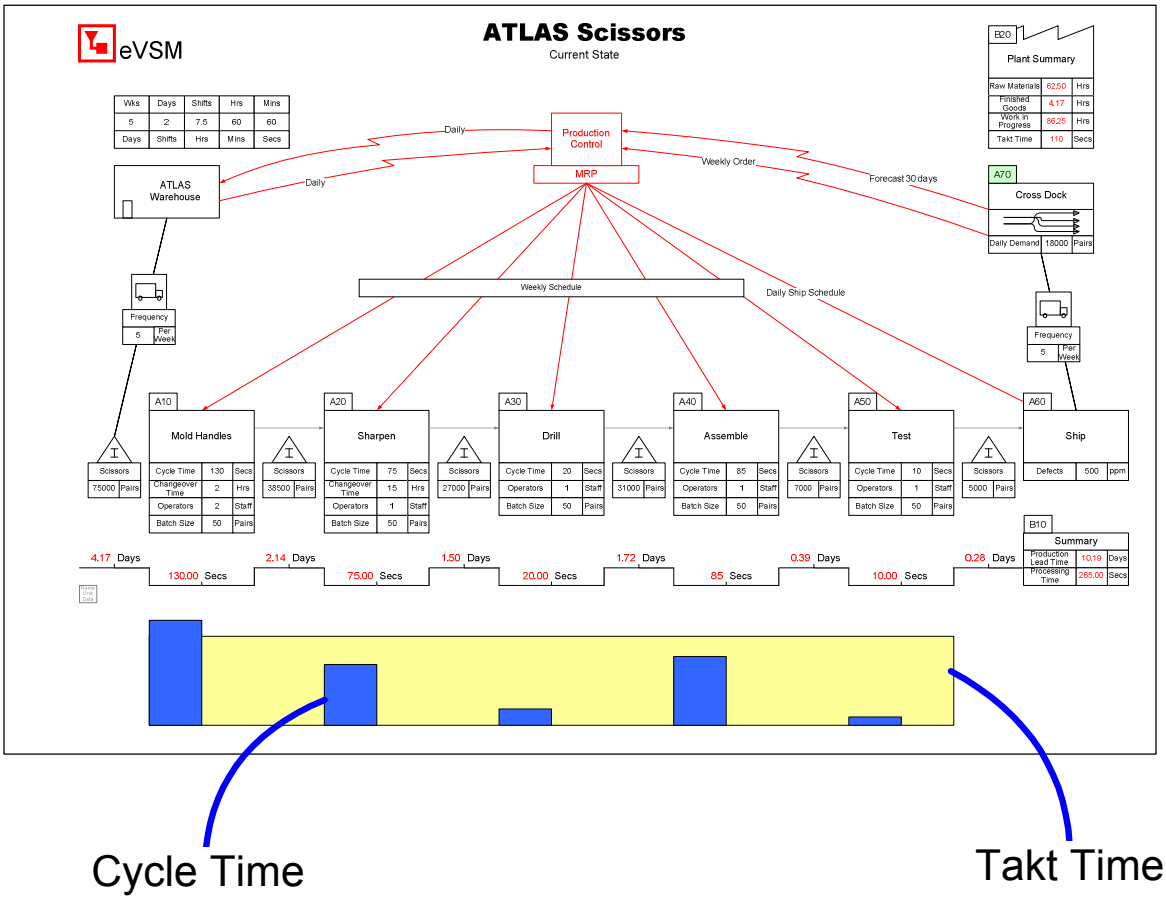
You can modify the scale factor for a collection that controls gadget size in relation to data value. Use the Apply button to see the new gadget sizes on the map before exiting the form.

To hide or show gadgets in a collection, first select the collection from a list, then click this button.

Note: the collection list has a column indicating visibility status.

You can color code the gadget fill and font colors based on the value of the data to which the gadget is glued. You can also simply “inherit” the color from the data shape or assign a color to a gadget manually.

Example: Cycle Time vs Takt Time

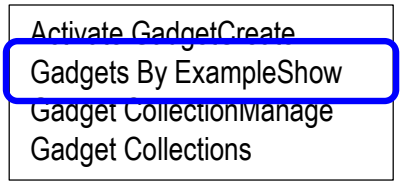


Steps to draw the example above:

1. First make sure that the data you wish to visualize with gadgets actually exists in eVSM data shapes.
2. Drag out a Bar Height Gadget, place it below the first activity, and glue it's flying connector to the Cycle Time NVU for the first activity.
3. Set the bar's fill color (blue in above example) and adjust the bar width if you like.

Example: Cycle Time vs Takt Time (Cont'd)

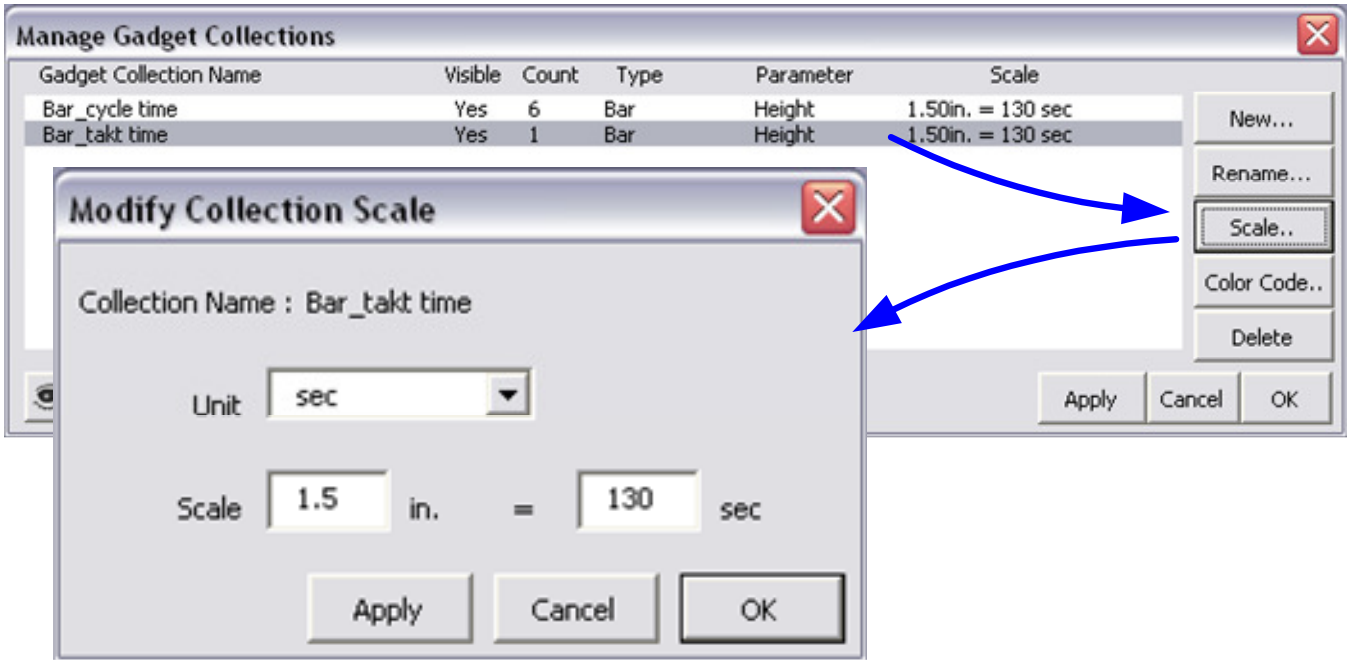
4. Click the Create Gadgets By Example in the bar's right mouse button menu



5. Drop a new Bar Height Gadget and attach it's flying connector to the NVU containing the Takt Time.

6. Align the new gadget with the first gadget collection, and adjust it's width to overlap the whole first collection. In above example, color is set to yellow.

7. Activate the new gadget with the Activate Gadget command in the right mouse menus.



8. Open the Manage Gadget Collections form, and make the gadget scales for both collections the same via the Modify… button

Gadgets – Key Points

1. Gadgets have a single size parameter that will scale to the data value in which a gadget is glued via the flying yellow connector.
2. Gadgets are typically glued to NVU, VA or NVA shapes. When gadgets in a collection are glued to data shapes with different units, Units Converters are needed on the map to compute the correct scale factors.
3. Gadgets have to belong to a collection. They can be put in a collection using the Activate Gadget command or by transferring them into a collection via the Manage Gadgets form.
4. Gadget scale factors and color coding can be controlled via the Manage Gadgets form.
5. An easy way to create a gadget “set” after creating a first gadget is to use the Create Gadgets By Example in the right mouse button menu.
6. The Visible switch on the Manage Gadgets form is very useful in showing different metrics on the map in a presentation environment.
7. See the “Examples” section on the eVSM help site (www.evsm.com/help) for usage examples of the different gadget types.
8. A starter set of gadgets is provided with eVSM. Additional gadgets can be requested by contacting support@evsm.com.

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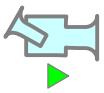
13. Standardizing Value Stream Maps

Help Movies

These and other short movies on eVSM are available at www.evsm.com/help

 Work with Variables

Create Macro Shapes

Standardization Components

eVSM has built-in functions to allow your organization to easily draw value stream maps using a standard that you define. With standardization, maps can be drawn and analyzed faster and can be understood by a wider group. The standard comprises of the following:

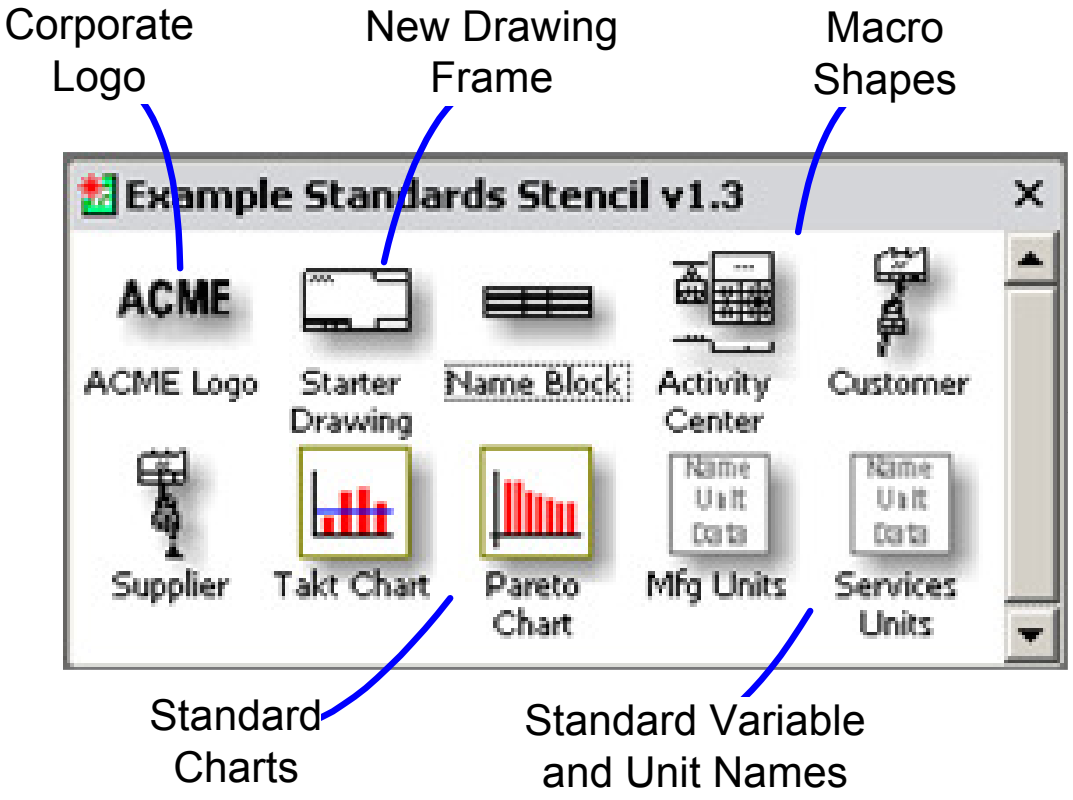
- Standard names for variables and units.
- A Standard set of Macro Shapes (combinations of shapes) that can make drawing maps faster.
- Blank Starter Maps to ensure consistency and minimize effort in starting new maps.
- Company specific set of icons (eg. logo, name block, etc.) to use when drawing maps.

Creating a New Standards (Visio Stencil) File

Components of standardization are delivered in a Visio Stencil file. To create a new stencil file, click “File>Shapes>New Stencil”.

This will open a new blank stencil. The stencil header bar contains a right mouse button menu which allows you to name the stencil (via the Properties command) and to save it (it is a good idea to include a version number in the stencil name). The stencil file should be saved in the “C:/Program Files/eVSMStandards” folder. If this folder does not already exist on your machine, then create it.

Copy/paste or drop shapes onto the stencil to populate it. Name the icon and edit it’s bitmap with the right-mouse menu options “Edit Master>Edit Icon Image”. Here is an example of a standards file content



Opening a Standards Stencil File

To open a Standards Stencil file from a drawing, click

"File > Shapes > Open Stencil…"

Then navigate to the folder below and select the *.vss file:

C:/Program Files/eVSMStandards

Note: A Visio drawing file "remembers" which stencil files were open when you last saved it.

If you want new drawings to open with the Standards Stencil already open, then follow these steps:

1. Start a new eVSM drawing by clicking the Start eVSM icon on the Desktop
2. Open the Standards Stencil via "Files >Shapes >Open Stencil…"
3. Click "File > Save As…", change "Save as type" to "Template (*.vst)", and save the file in the "C:/Program Files/eVSMStandards" folder.
4. Optionally, you can copy the saved *.vst file and paste a shortcut for it on the Desktop and/or the Windows Start menus. When the *.vst file or the shortcut is clicked, it will start a new eVSM map with the standards file

Managing Names & Units

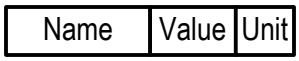
The Name & Unit Manager (NUM) provides a simple way of managing the names and units on a map via this toolbar button.

eVSM Name and Unit Manager

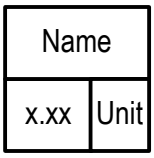
The purpose of this management environment is to:

1. Provide a means to type in a name only once and then use it consistently through out the map.
2. Provide a means to associate a default unit with a name so that when a name is selected, the unit is automatically set.
3. Provide a means of creating a starter set of names and units for different application areas such as manufacturing, healthcare, etc. This will allow a company to create standard variable sets and deploy them easily.

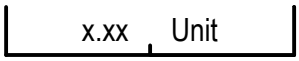
The NUM function does not allow editing of names and units directly in the data shapes. New names must first be added to the NUM form. Then they can be accessed via right mouse button menus on the following data shapes.



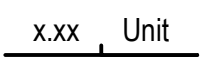
Long NVU



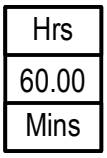
Short NVU



Value Added



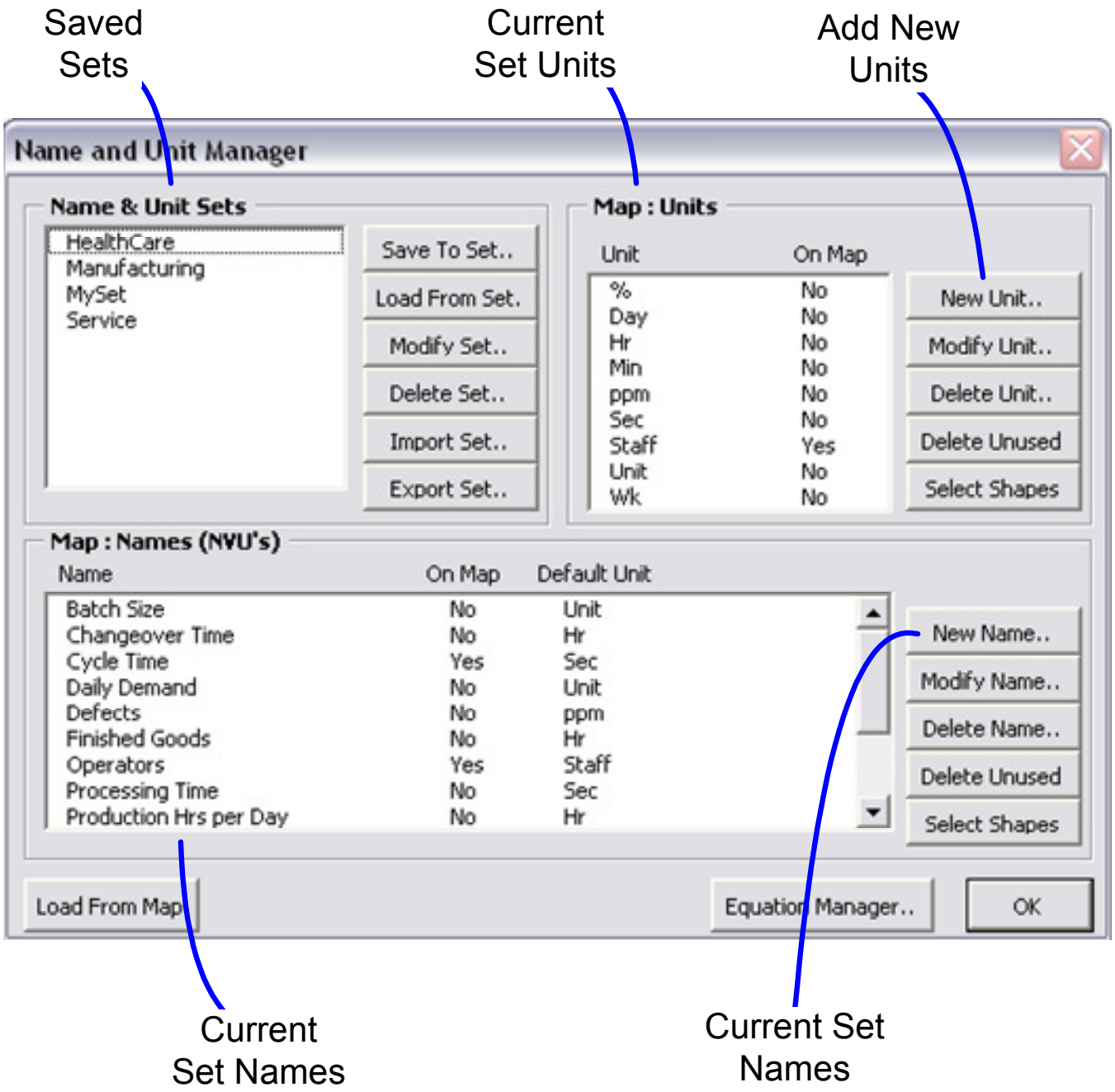
Non Value Added



Units Converter

Managing Names & Units (Cont'd)

The NUM form is divided into three parts: Sets, Units, and Names. Names and units visible in this dialog box represent the Current Set. Only the Current Set names and units are available on the right mouse button menu of datasets.



Managing Names & Units (Cont'd)

Each name has a default unit. If a new name requires a new unit, then the new unit must be created first.

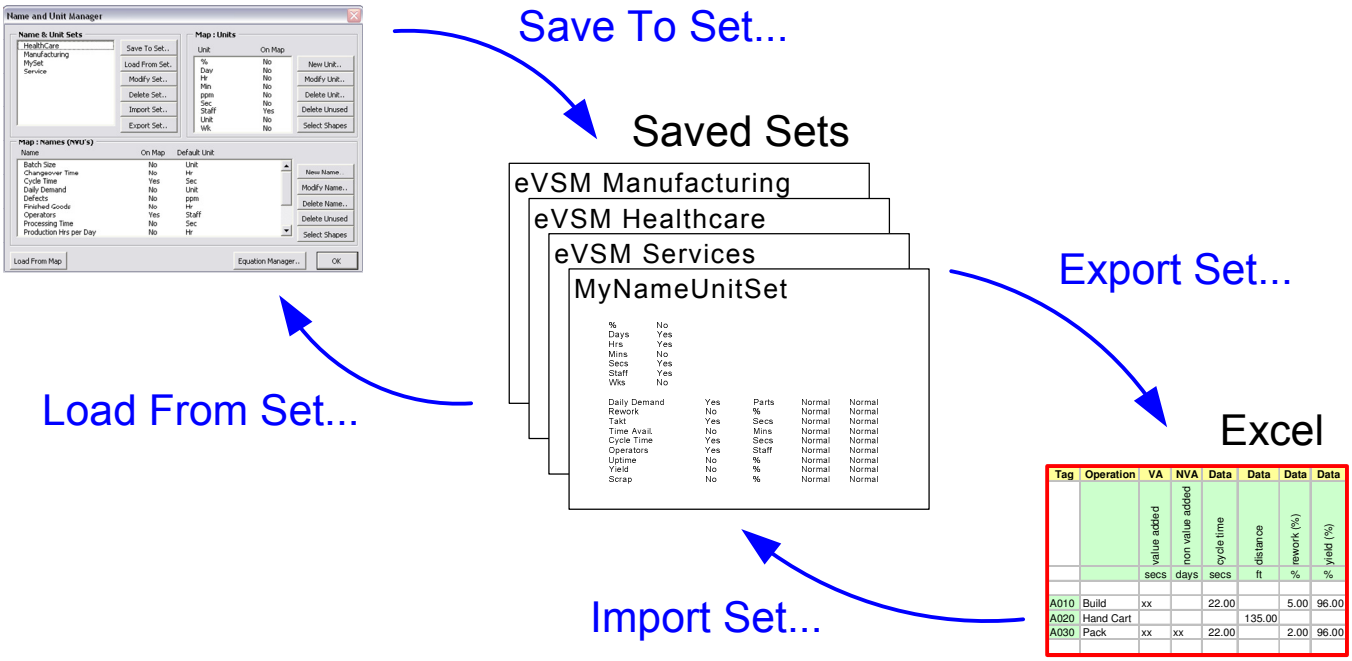
The names and units seen in the NUM form are available on the current page only and are stored in the NUM shape.

The NUM shape can be copied to other pages or shared with team members via a stencil.

Name & Unit Sets

Sets are used to store collections of names and units.

The whole current set can be saved as a new saved set. However, when a saved set is loaded into the current set, it does not replace the current set, but adds to it.



Tag	Operation	VA	NVA	Data	Data	Data	Data
		value added	non value added	cycle time	distance	rework (%)	yield (%)
		secs	days	secs	ft	%	%
A010	Build	xx		22.00		5.00	96.00
A020	Hand Cart				135.00		
A030	Pack	xx	xx	22.00		2.00	96.00

Saved sets can be imported/exported to Excel with the “Import Set..” and “Export Set..” buttons.

To create your own set, just edit the current set so it contains only items that you want. Then save this as a new set with the “Save To Set” button.

Name & Unit Sets (Cont'd)

You can also create a new set in Excel and then import it with the "Import Set.." button.

The saved set can be used on other drawings and files by exporting it to Excel and them importing the Excel file into your target drawing.

You can edit the standardized list of names and units either by export/import to Excel or via the "Modify Sets.." button.

Delivery of Standardized Components

The team leader creating the company standard essentially creates a collection of files that need to be copied to the following folder on each team member's machine:

"C:/Program Files/eVSMStandards"

Example files:

"acme.vss"	-	standards file (Visio stencil format)
"acme.vst"	-	new drawing startup file
"readme.txt"	-	can include version number, history, any special instructions, etc.

A shortcut on the Desktop (or the Start menu) pointing to the "acme.vst" file is useful for quick access to the standard.

The files can be delivered by manual means such as email, CD, etc. For wider distribution, a setup.exe may be created to automatically install the files in the correct location and create a shortcut. One way of creating a setup.exe is shown at www.evsm.com/v4/selfext.

Standard Update Process

Steps to update and deploy the new standard:

1. **Update Standard Files** – team leader updates one or more files.
2. **Increment Version Number** - in the stencil header bar. Also update history in the readme.txt file.
3. **Send to Team** – rebuild installation kit, update installation instructions, email or upload to server.
4. **Install on Team Machines** – verify update is not already installed. Exit Visio and install new version.

The new standard is ready for use on new maps.

The “Load From Map” button will scan the current map for any names/units which do not exist in the current set and add them to the current set.

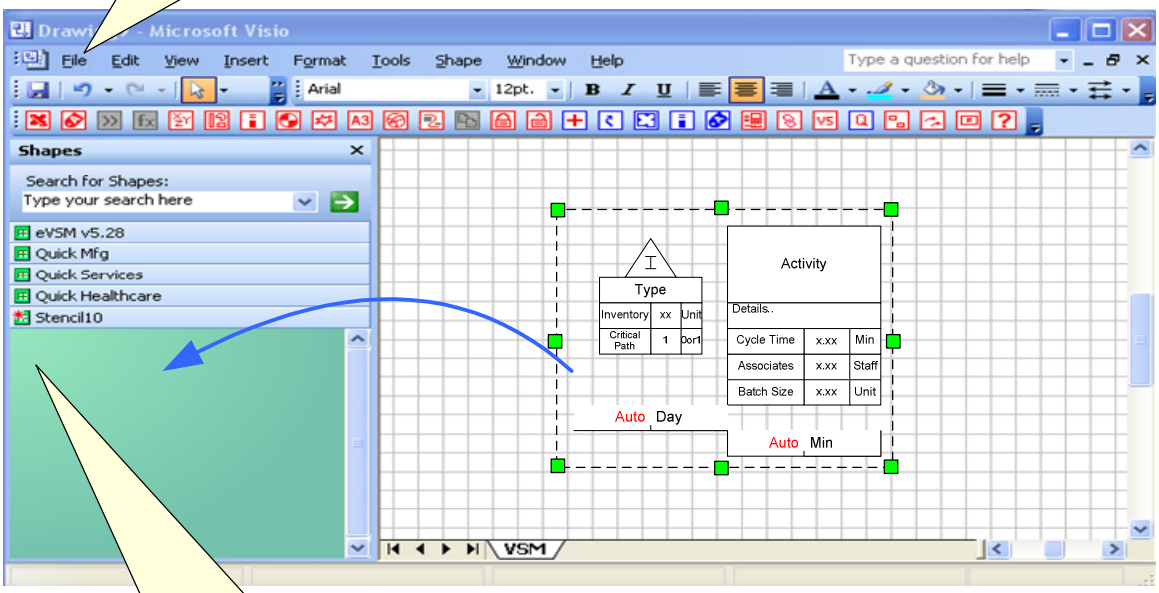
eVSM Macro Maker

eVSM Macro Maker allows you to create Macro Shapes. Macro Shapes are made up of collections of commonly used shapes. Macro Shapes can really speed up drawing of maps.

The eVSM Macro Maker button is in the eVSM toolbar and replaces the “Macro Maker” shape which was in earlier versions of eVSM.

eVSM Macro Maker

Create a new Stencil by clicking on File (on the main Visio Menu Bar) – Shapes – New Stencil



Any Stencil to which changes are being made must be in Edit Mode

Steps to Create a New Macro Shape

1. From the main Visio Menu Bar click on "File>Shapes>New Stencil" to create a new stencil, or Right Click on an existing stencil and select Edit Stencil.
2. Select the shapes on the drawing page which you wish to include in the new macro.
3. Make a copy of the shapes and drag the copied shapes into the stencil.
4. Select the new Macro in the Stencil, then select the shapes from step 2 and click the eVSM Macro Maker. Select Yes when the message "OK to replace Shape contents in Stencil: XXXXX".
5. Name the Macro in the stencil by right clicking.
6. Edit the icon image if necessary via the icon's right-mouse-button menu ("Edit Master > Edit Icon Image").
7. Test the macro by dragging and dropping it onto a map.
8. If needed, make any changes that are required and repeat steps 2 to 7.
9. Once your macro shape is ready, save the stencil.

Steps to Edit an Existing Macro Shape

1. Open the stencil in which the macro resides and put the stencil in edit mode (“Edit Stencil” command in right mouse menus).
2. Drag and drop your macro shape from the stencil onto the drawing page.
3. Make desired changes on the drawing page.
4. Select the updated shapes on the drawing page. Then select the original macro shape in the stencil.
5. Click the eVSM Macro Maker button on the toolbar. This will update the macro in the stencil.
6. Test the updated macro by dragging and dropping it onto a map.
7. If needed, repeat steps 3-6.
8. Once your macro shape is ready, save the stencil.

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14. Analyzing with eVSM

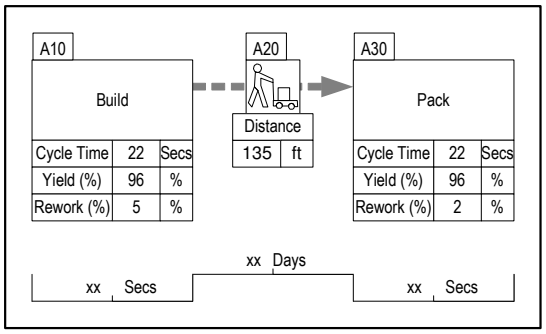
Help Movies

These and other short movies on eVSM are available at www.evsm.com/help:

- Transfer Map Data to Excel
- Create Managed Equations
- Prepare for Analysis
- Create Formulas directly on the map
- Working with Units
- Fast Update
- Multi-lane Processes
- Perform Calculations in Excel

The eVSM Calculator

Visio



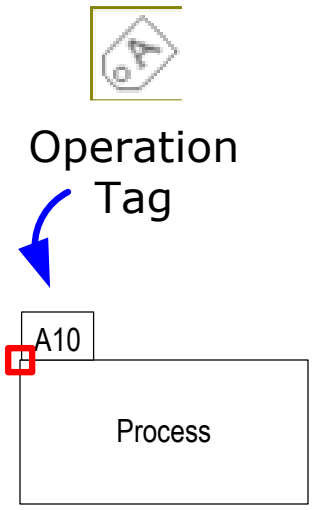
Excel

Tag	Operation	VA	NVA	Data	Data	Data	Data
		value added	non value added	cycle time	distance	rework (%)	yield (%)
		secs	days	secs	ft	%	%
A010	Build	xx		22.00		5.00	96.00
A020	Hand Cart				135.00		
A030	Pack	xx	xx	22.00		2.00	96.00

The eVSM Calculator (Cont'd)

The eVSM Calculator button in the toolbar provides bi-directional transfer of information between the map and a spreadsheet. When the button is clicked for the first time in a map, eVSM automatically creates a new Excel file and puts it in the same folder the Visio file is saved in. The function only operates on the current map page

Operation Tags

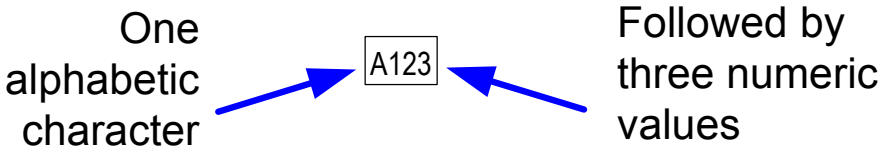


The Operation Tag shape is used to specify which activities get synchronized with Excel. The tag is glued to any glue-point on the activity shape.

As new tags are dropped on the map, their numbers will increment automatically. The numbering sequence can be controlled via the eVSM Tag Number button.

eVSM Tag Path Locator Defaults

Tag numbers can also be named manually. However, the name must be unique and must be in the following format.



Each tagged shape will generate a row in the spreadsheet. Any data associated to that shape (via gluing) will appear in that row. Excel rows are alphabetically sorted by tag number.

Operation Tags (Cont'd)

A quick way to tag activities is to select them on the page and in the sequence that you want them to be tagged. Then simply click the eVSM AutoTag button.

eVSM AutoTag

The activities will be tagged starting with the tag number and increment value as specified in the form under the eVSM Tag Number Button.

eVSM Tag Path Locater Defaults

If you pick just a single existing tag and click the eVSM AutoTag button then it will use the current tag value to reset the form under the eVSM Tag Number Button. This is useful because in addition to adding and numbering tags for the first time, the eVSM Autotag button can also be used to renumber a selected set of tags or activities.

Excel Rowmaker Shapes

Only shapes with a grey corner in the stencil can be tagged. These are called Excel rowmaker shapes since each of these creates its own row in the spreadsheet.

Row shape examples:

Operation Shapes | Transport Shapes | Outside Source | Table | Transmit Shapes

Common Calculator Problems

The eVSM Calculator has some requirements, if these are violated, the calculator will stop, display an error message, and in some cases, highlight the problem area on the map with a red circle.

Missing Data: Data Shapes which are not properly associated to Rowmaker Shapes (via gluing) will be missed in the data transfer. The following button in the toolbar highlights any data shapes which will be missed.

eVSM Excel Check On/Off

Missing Units Converter: If a variable is used with more then one unit (eg. Cycle time in minutes and seconds), then a units conversion factor must be provided. See the “Using Units Converter” section on how the Units Converter Shape is used to specify the conversion factor.

Common Calculator Problems (Cont'd)

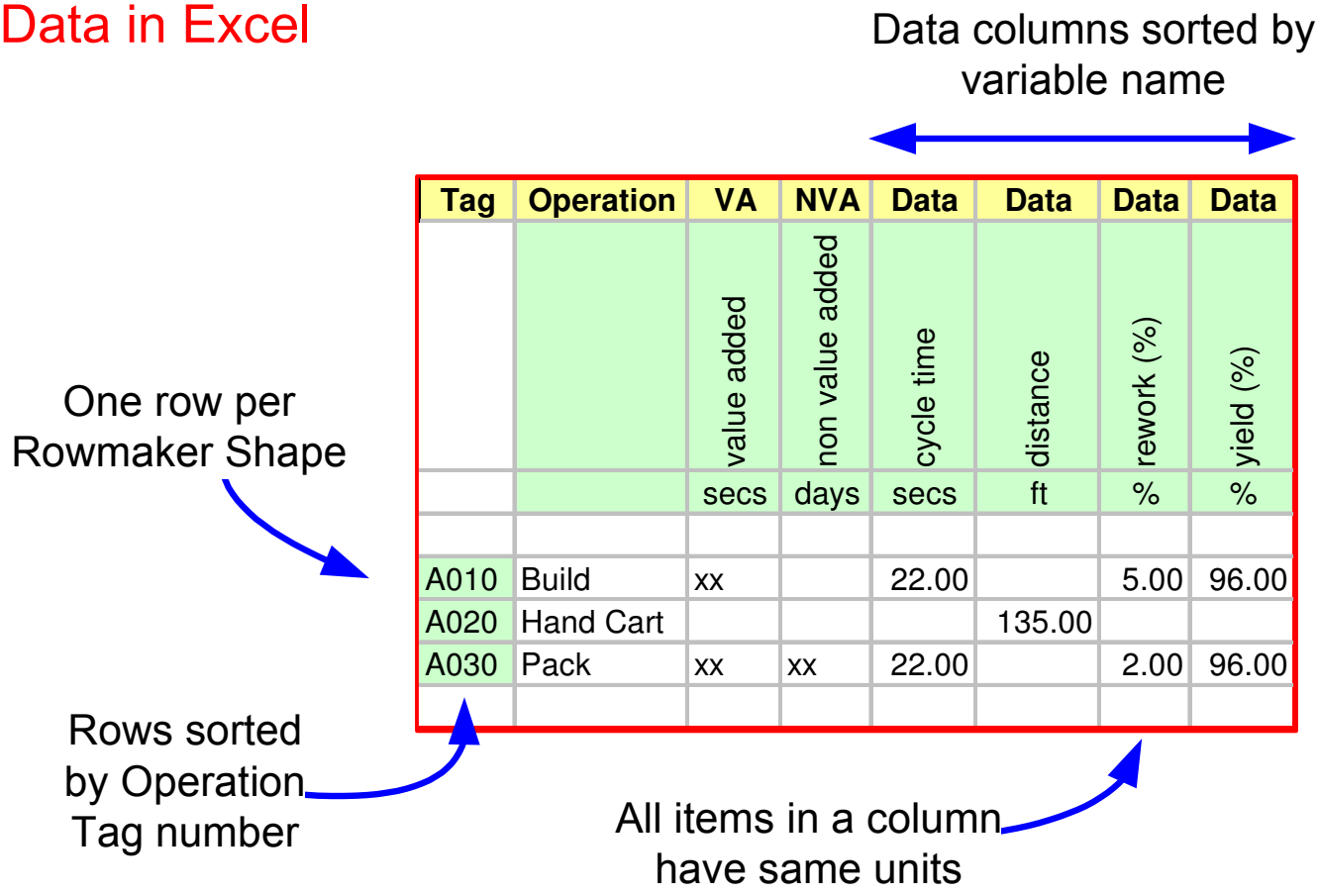
Duplicate or Unglued Tags: Each Operation Tag on the map must have a unique value and must be glued to a valid Row Shape.

Overlapping Data Shapes: Overlapping Data Shapes when some are hidden behind others is not allowed.

Duplicate Data Shapes: Each Data Shape within a Row Shape collection must have a unique variable name.

Grouped Shapes: eVSM Shapes should not be grouped. The Calculator will abort if grouped shapes are found.

Data in Excel

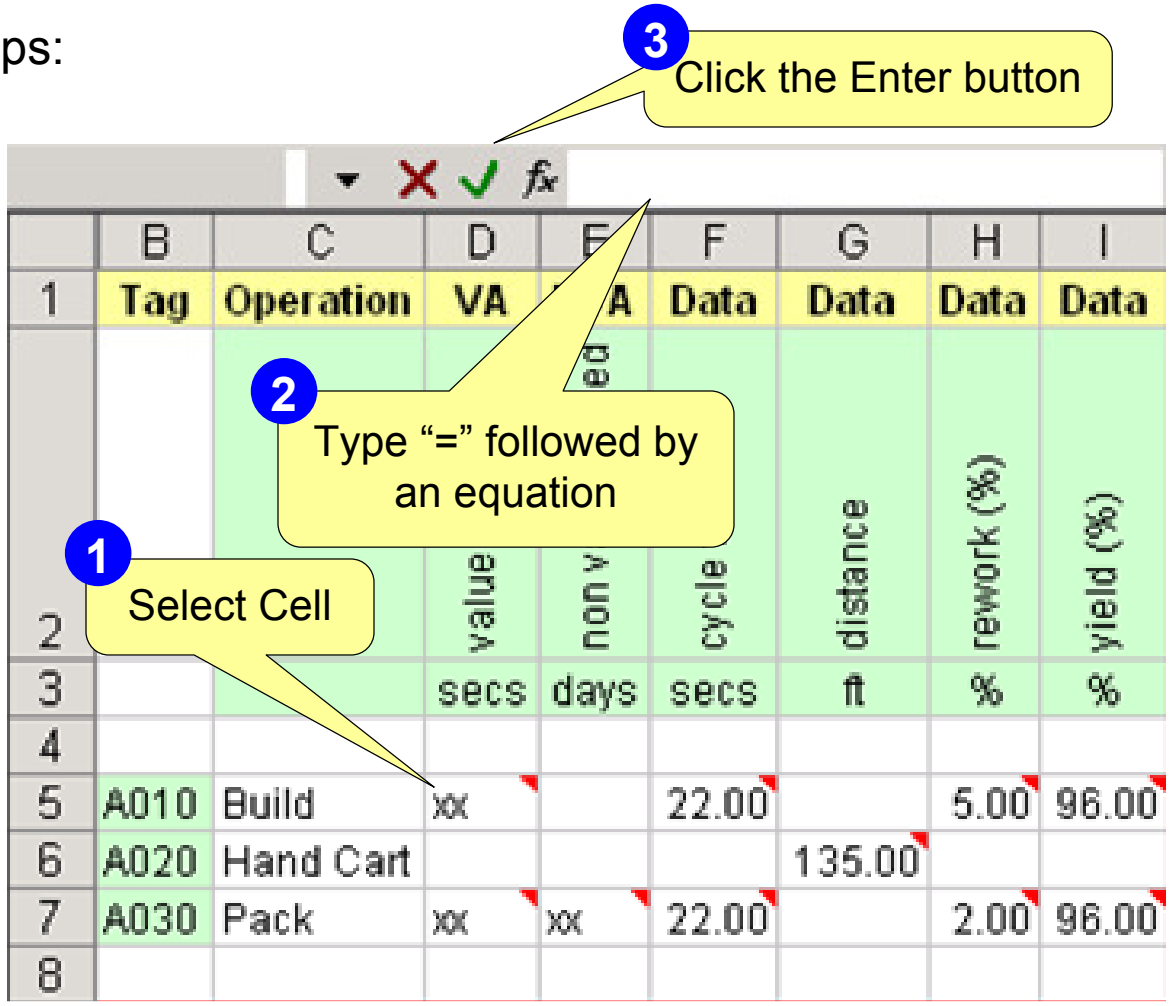

Data columns sorted by variable name
One row per Rowmaker Shape
Rows sorted by Operation Tag number
All items in a column have same units

Tag	Operation	VA	NVA	Data	Data	Data	Data
		value added	non value added	cycle time	distance	rework (%)	yield (%)
		secs	days	secs	ft	%	%
A010	Build	xx		22.00		5.00	96.00
A020	Hand Cart				135.00		
A030	Pack	xx	xx	22.00		2.00	96.00

Calculations in Excel

Equations may be entered in the spreadsheet cells in which Data Shapes are represented.

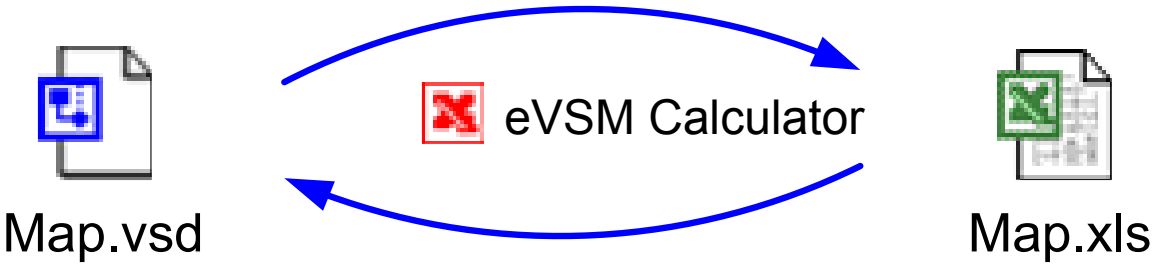
Steps:


3
Click the Enter button
2
Type "=" followed by an equation
1
Select Cell
B C D E F G H I
1 Tag Operation VA VA Data Data Data Data
2 value non v cycle distance rework (%) yield (%)
3 secs days secs ft % %
4
5 A010 Build xx 22.00 5.00 96.00
6 A020 Hand Cart 135.00
7 A030 Pack xx xx 22.00 2.00 96.00
8

The next time the Calculator is run, the result of the equation will be displayed in the appropriate data shape on the map. The calculated value will be color coded red to show it is controlled by Excel.

Note: After the "=" sign, instead of an equation (eg. =C3*D12), static values (eg. =216) can also be entered. This allows entry of measured metrics directly in the spreadsheet.

Excel and Visio File Naming



When the eVSM Calculator is run for the first time, the Excel file is created automatically and saved in the same folder as the Visio file. The Excel file is given the same name as the Visio file. A worksheet is created in Excel with the same name as the Visio page.

Unit conversion variables in Excel are also scoped by the page name.

eVSM relies greatly on the correspondence in names. Map names should only be changed using the “Model Copy” function

Fast Update

eVSM Fast Update

The Fast Update button in the toolbar allows spreadsheet update 10x faster than running the eVSM Calculator. It is active if changes after a calculator run are limited to formulas and data values only.

The button is inactive (grayed out) when the spreadsheet is out of sync with the map. It gets activated when the Calculator is run.

Numeric Formatting and Cell Fill Color

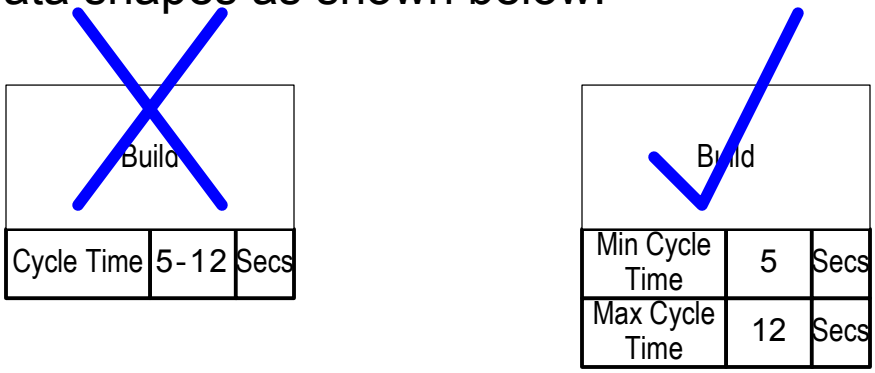
Raw data values are input in Visio and Formulas are input in Excel. Results from Excel calculations are redisplayed on the map in Visio.

The results of formula-based values are shown in Red in Visio and Excel to distinguish them from raw data typed into Visio

Number formats set in Excel for formula-based cells are inherited by Visio shapes. Colors of cells in Excel are inherited by Visio shapes. Cell colors can be set directly or by using Excel's Conditional Formatting capability

Data Ranges

Data ranges (eg. Cycle time = 5-12 Secs) must be entered in separate data shapes as shown below.



Model Copy

eVSM Model Copy

The Model Copy button in the toolbar allows the map and associated spreadsheet to be copied to a new page in the same Visio file. This is very useful in copying an existing map with calculations and then making modifications for "what-if" studies or Future state possibilities.

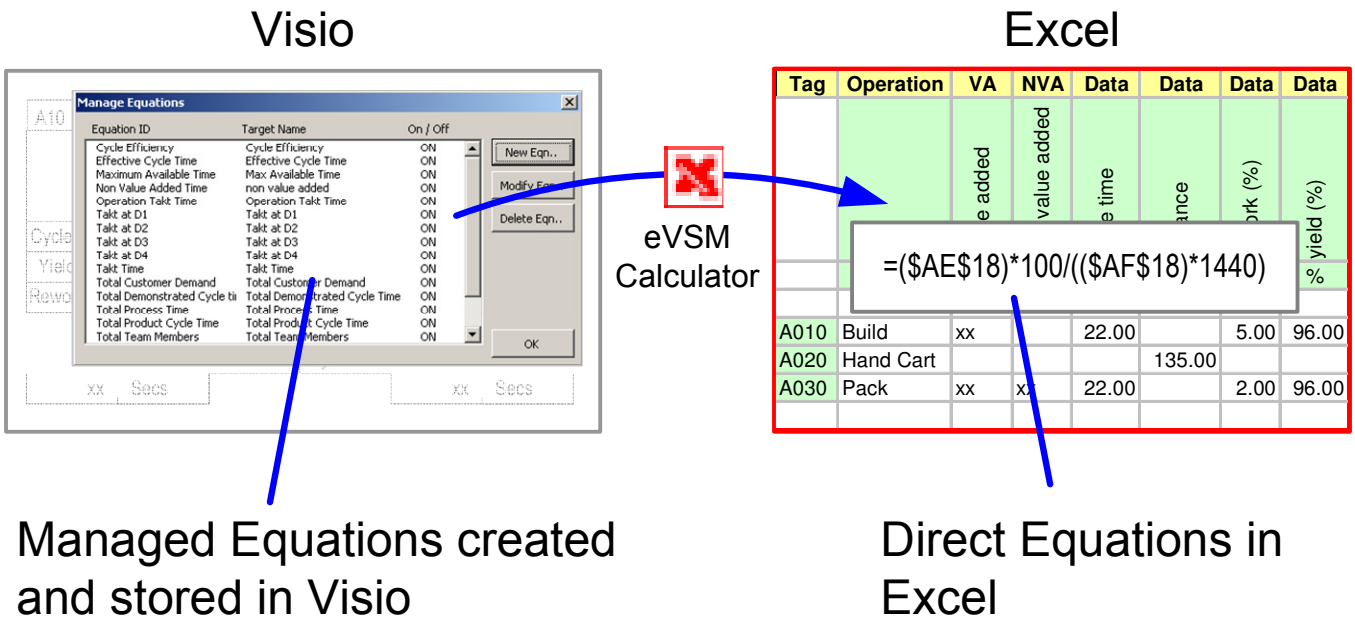
eVSM Equation Manager

All eVSM calculations are done via an integrated Excel spreadsheet. The spreadsheet is created automatically when the “eVSM Calculator” function is invoked. Results from calculations in the spreadsheet are automatically displayed on the map. eVSM supports two types of equations to perform the calculations:

1. Direct Equations – formulas entered directly into cells in Excel.
2. Managed Equations – equations managed by eVSM and automatically inserted as formulas in Excel.

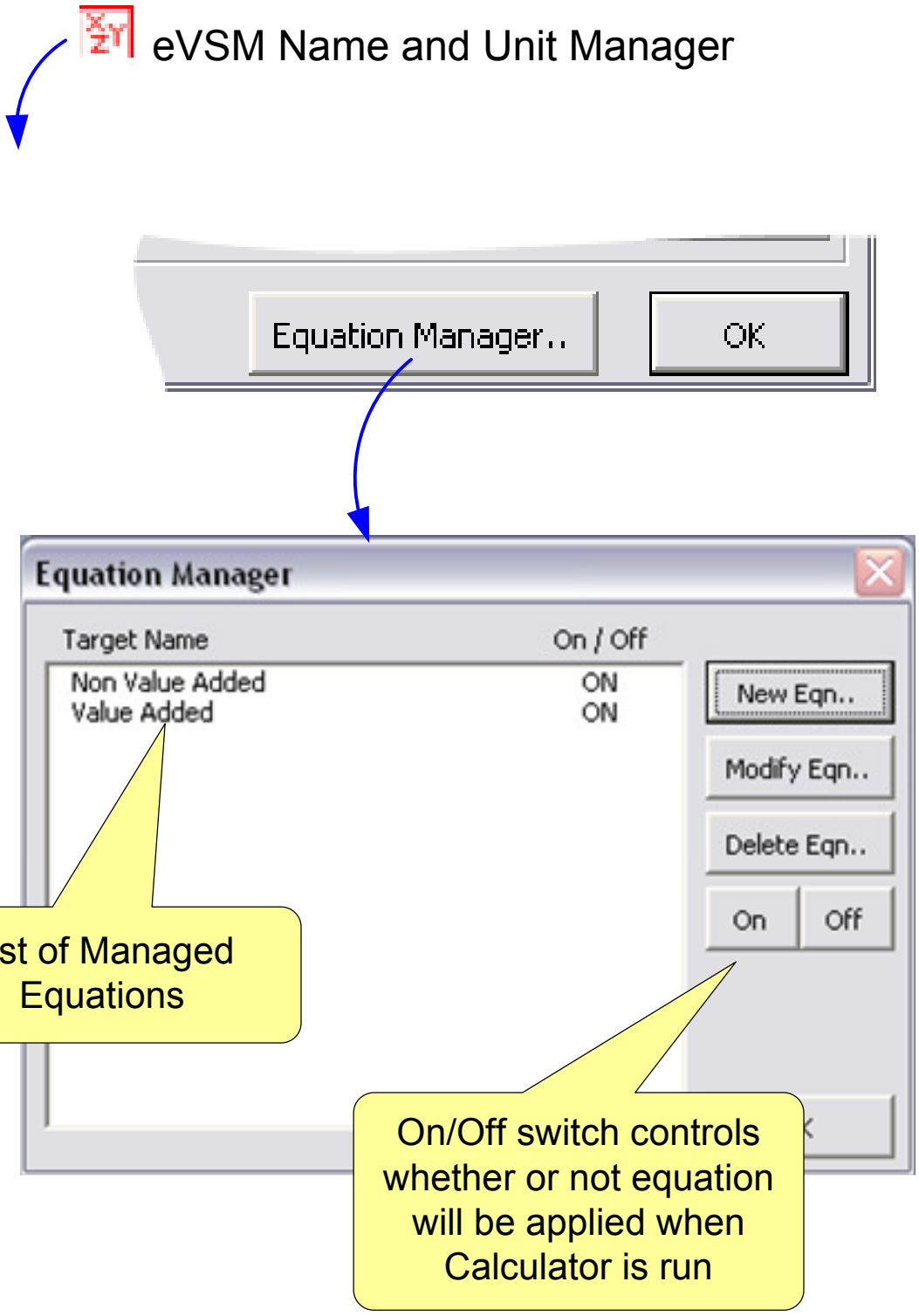
This section shows the Managed Equations capability in eVSM.

Managed Equations are created in Visio and stored in the NUM shape. When the eVSM Calculator is run, they generate Direct Equations in Excel.



eVSM Equation Manager (Cont'd)

The Equation Manager form is accessed through the Name and Unit Manager



Creating Managed Equations

In this example, we will set up a Managed Equation to calculate the Non-Value added (NVA) times associated with inventory and daily demand. The equation is:

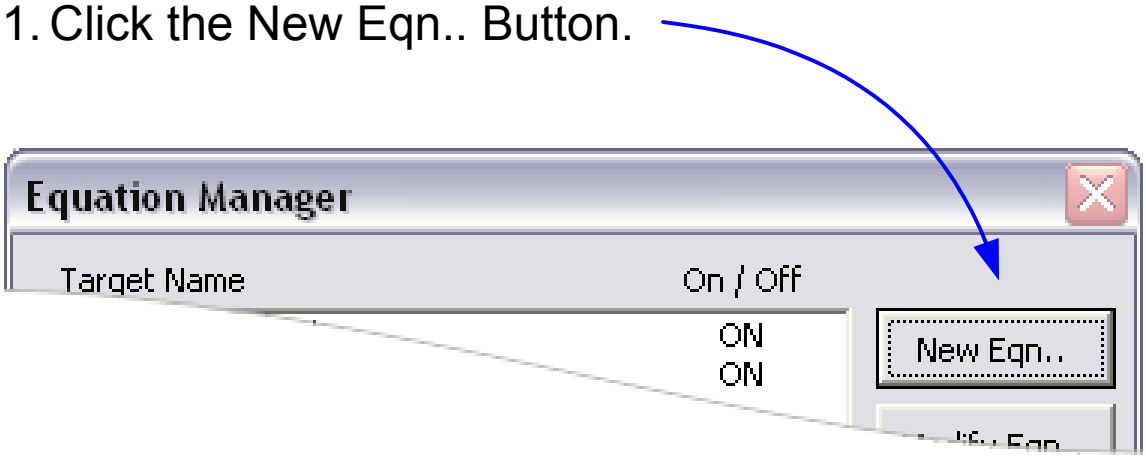
$$\text{Non Value Added (Days)} = \frac{\text{Inventory (Units)}}{\text{Daily Demand (Units/Day)}}$$

Our goal is to use a single equation for the variable “Non Value Added” that is applied everywhere on the map where this variable exists. We will assume two key rules of the Equation Manager:

- There is only one equation for each target variable name (left hand side of the equation).
- An equation is either applied to the whole map (when it is ON), or not applied at all (when it is OFF).

Steps

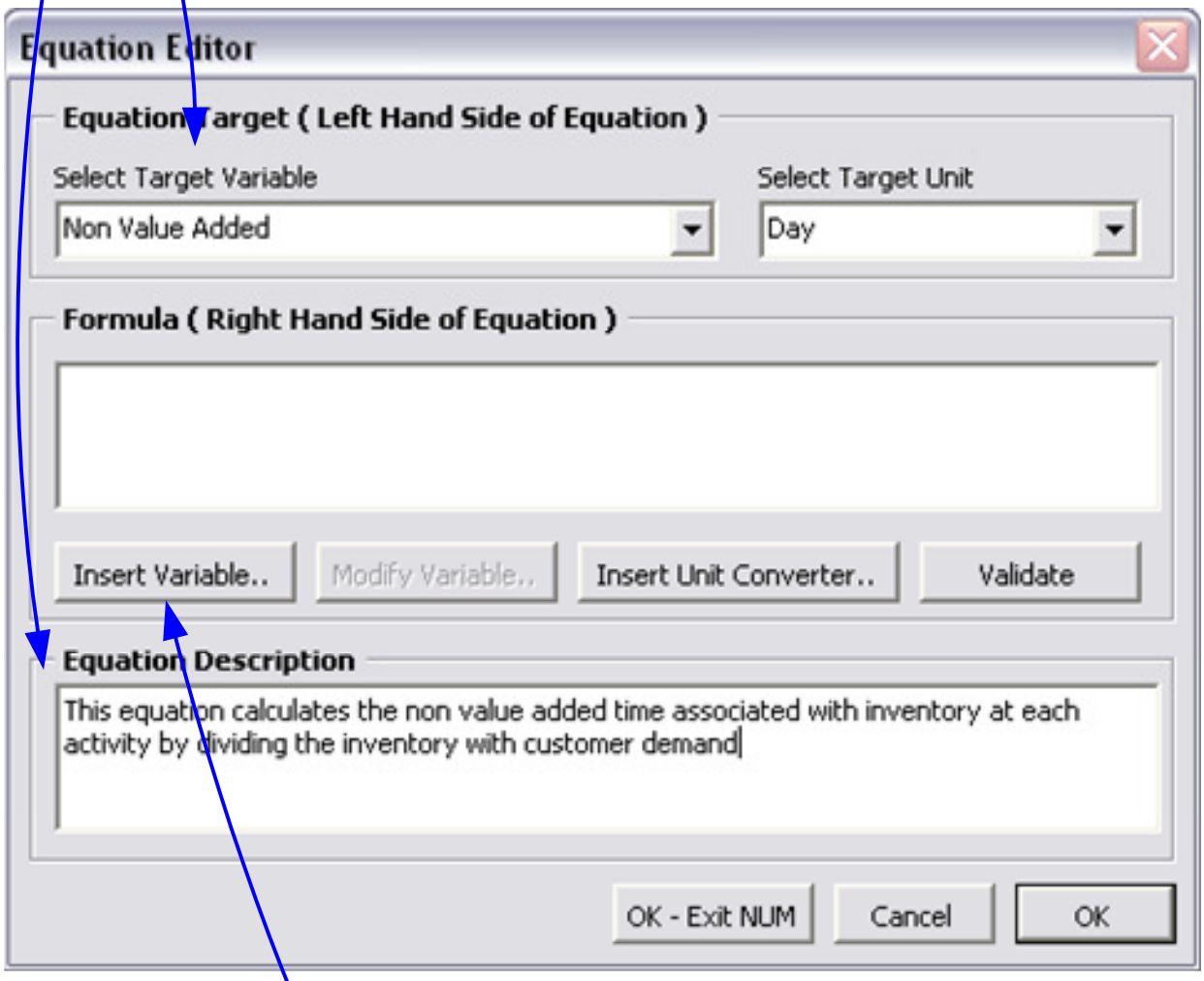
1. Click the New Eqn.. Button.



Steps (Cont'd)

2. Enter a name and description (optional) for the equation.

3. Select the variable name to calculate and it's corresponding units. This represents the left hand side (LHS) of the equation.

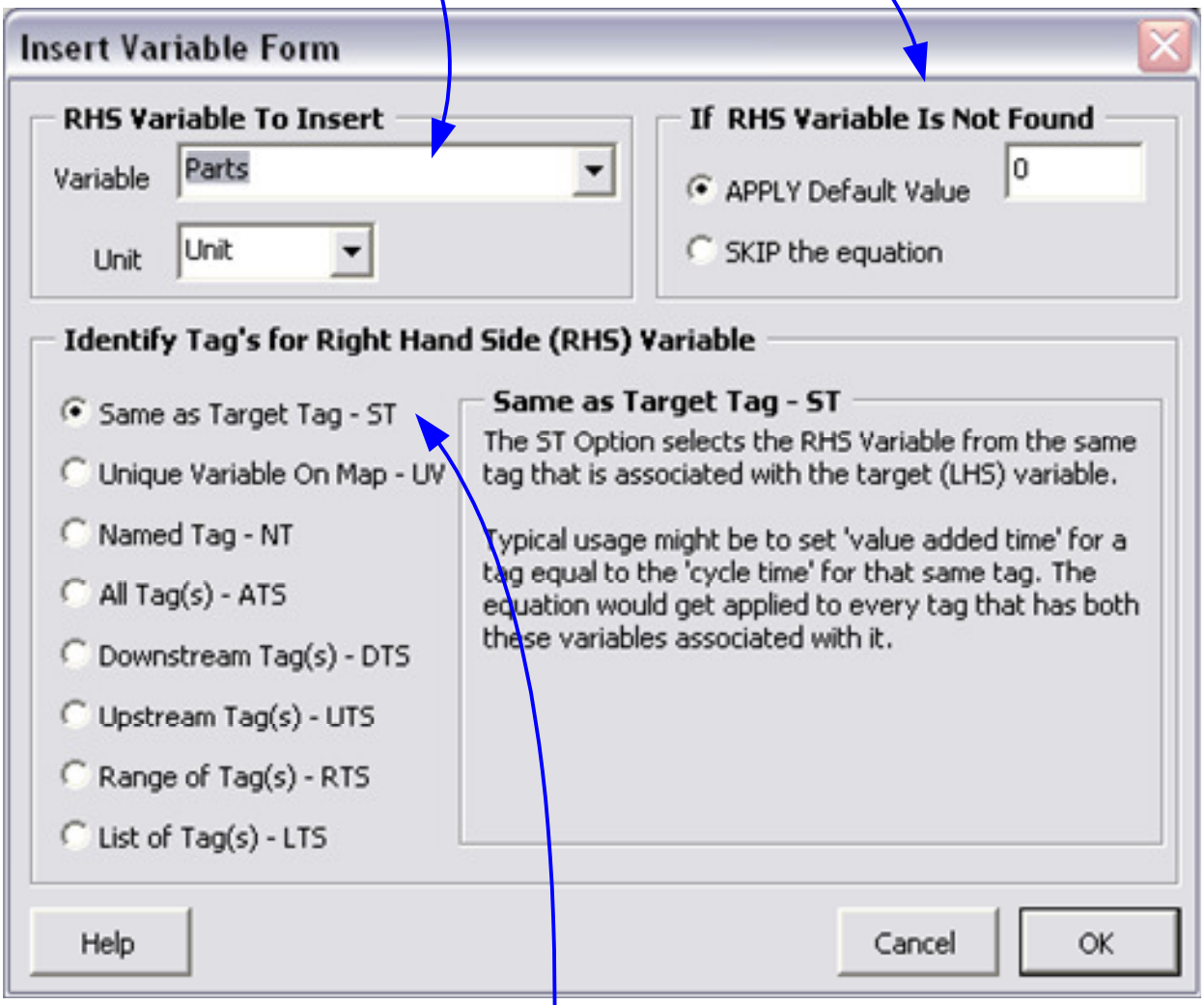

Equation Editor
Equation Target (Left Hand Side of Equation)
Select Target Variable
Non Value Added
Select Target Unit
Day
Formula (Right Hand Side of Equation)
Insert Variable..
Modify Variable..
Insert Unit Converter..
Validate
Equation Description
This equation calculates the non value added time associated with inventory at each activity by dividing the inventory with customer demand
OK - Exit NUM
Cancel
OK

4. Click Insert Variable for the right hand side (RHS) of the equation.

Steps (Cont'd)

5. Select "Parts" for variable name and units

6. Specify action to take if variable is not found on map

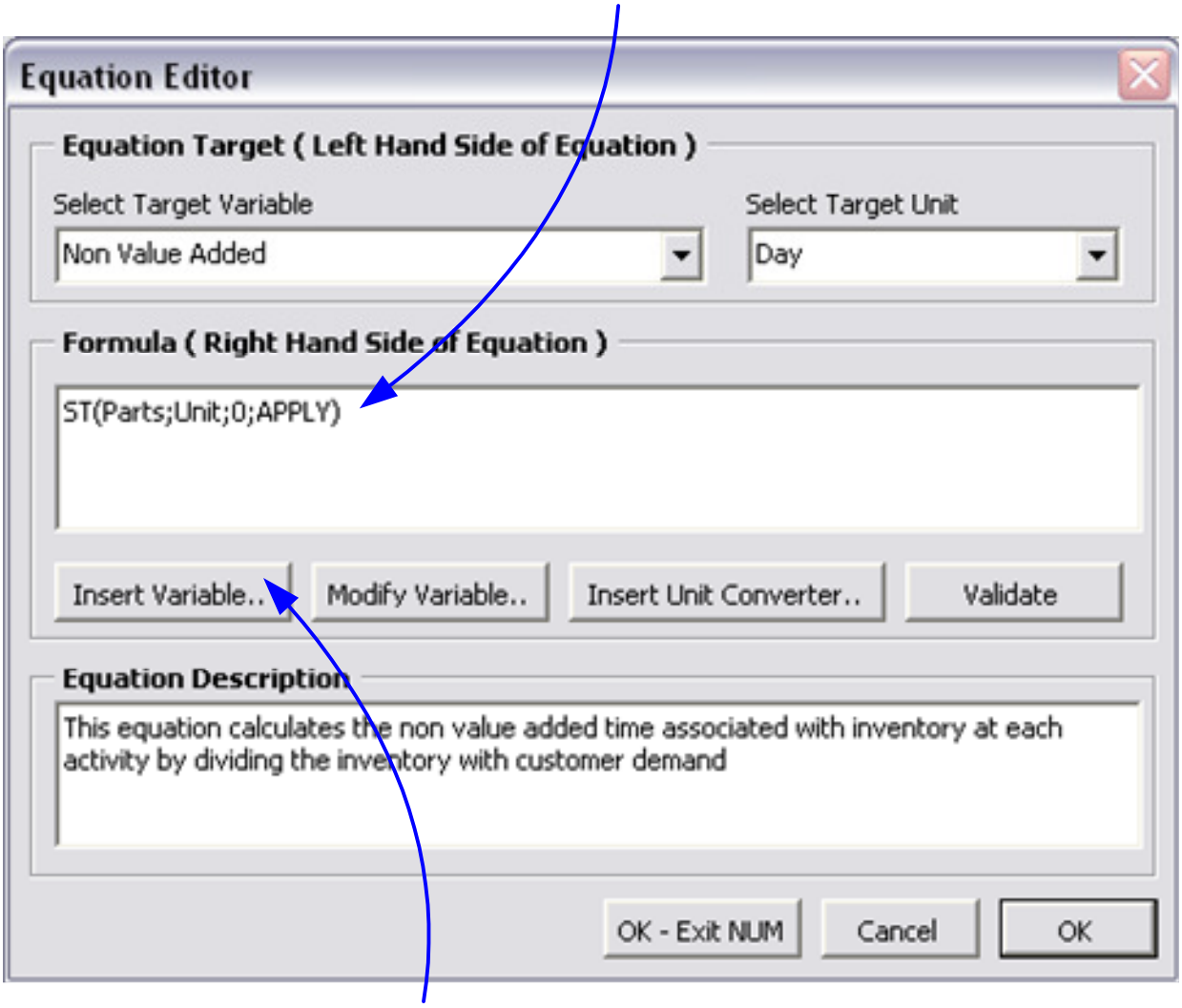

Insert Variable Form
RHS Variable To Insert
Variable
Parts
Unit
Unit
If RHS Variable Is Not Found
APPLY Default Value
0
SKIP the equation
Identify Tag's for Right Hand Side (RHS) Variable
Same as Target Tag - ST
Unique Variable On Map - UV
Named Tag - NT
All Tag(s) - ATS
Downstream Tag(s) - DTS
Upstream Tag(s) - UTS
Range of Tag(s) - RTS
List of Tag(s) - LTS
Same as Target Tag - ST
The ST Option selects the RHS Variable from the same tag that is associated with the target (LHS) variable.
Typical usage might be to set 'value added time' for a tag equal to the 'cycle time' for that same tag. The equation would get applied to every tag that has both these variables associated with it.
Help
Cancel
OK

7. Select the "ST" option. This specifies how data will get selected from map. The selections are based on Operation Tag and are explained further in the following pages.

8. Click "OK" to return to the previous form.

Steps (Cont'd)

9. Type "/" for the divide sign



10. Insert the next variable for the RHS. Here is the resulting equation:

"ST(Parts;Unit;0;APPLY)/UV(Daily Demand;Unit;0;SKIP)"

To edit variables in the equation, place the cursor on the variable and click the "Modify Variable.." Button.

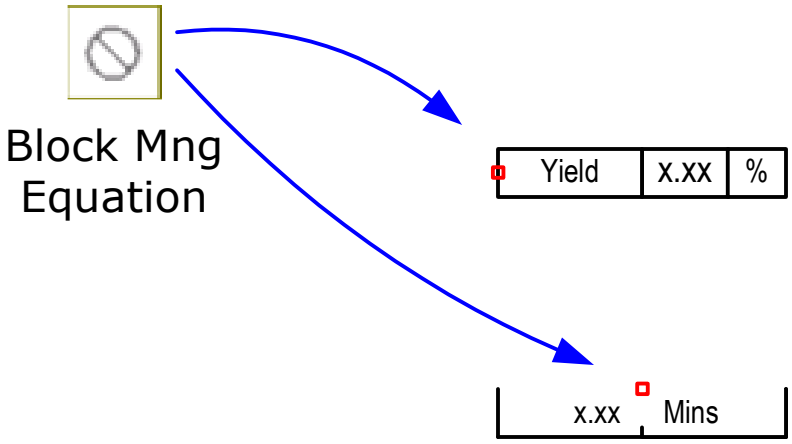
11. To convert the Managed Equation into Direct Equations, click the Calculator button.

Equation Manager Variables Options

- **Same as Target Tag (ST)** – Used to select the RHS variable from the same operation tag as the LHS variable.
- **Unique Variable On Map (UV)** – Can be used when a variable occurs only once on the map, so there is no need to specify the operation tag id for it.
- **Named Tag (NT)** – Allows you to provide a specific tag id. Should be used sparingly because of dependency on fixed tag id.
- **All Tags (ATS)** - Selects the RHS variable from every tag on map where it exists and makes a list to put in the Excel function. Typical usage: sum all VA times.
- **Downstream Tags (DTS)** – Selects the RHS variable from the downstream tag as specified by the Tag Seq arrows connecting the tags. Typical usage might be for cumulative calculations starting downstream and moving upstream like effective yield calculations.
- **Upstream Tags (UTS)** - Selects the RHS variable from the downstream tag as specified by the Tag Seq arrows connecting the tags. Typical usage: cumulative time or cost calculations.
- **Range of Tags (RTS)** - Selects RHS variable from all tags within the range provided. Typical usage: sum all times for the A series tags in a swimlane chart.
- **List of Tags (LTS)** - Selects RHS variable from all tags supplied in a list

Block Managed Equations

Each target variable (left hand side of equation) can be driven by only one Managed Equation. When the Calculator is run, the Managed Equation will be applied to every instance of the target variable. Sometimes, you may want to block the Managed Equation from being applied to some instances of the target variable. This can be done with the “Block Managed Equation” shape.



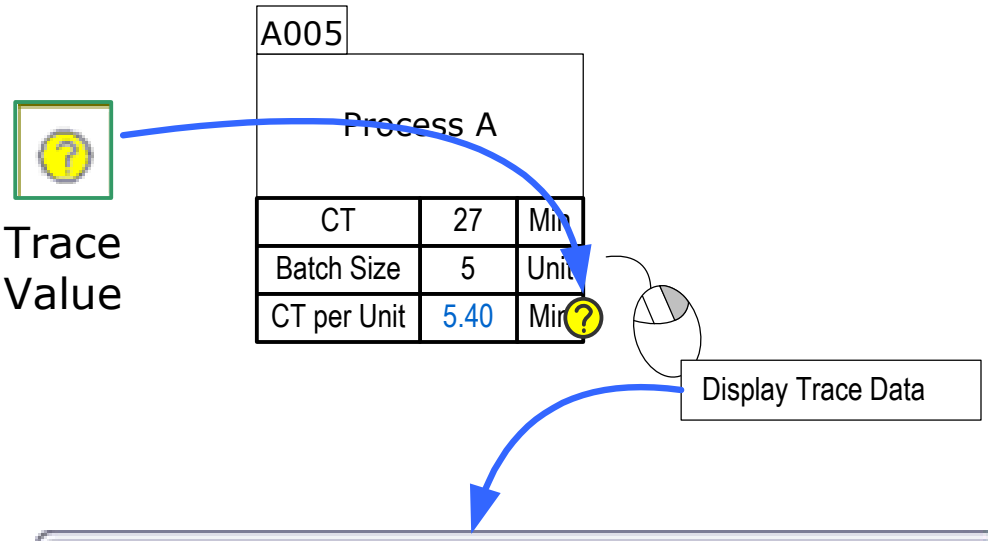
Simply glue the “Block Manage Equation” shape to any data shape which you want omitted from the Managed Equations calculation.

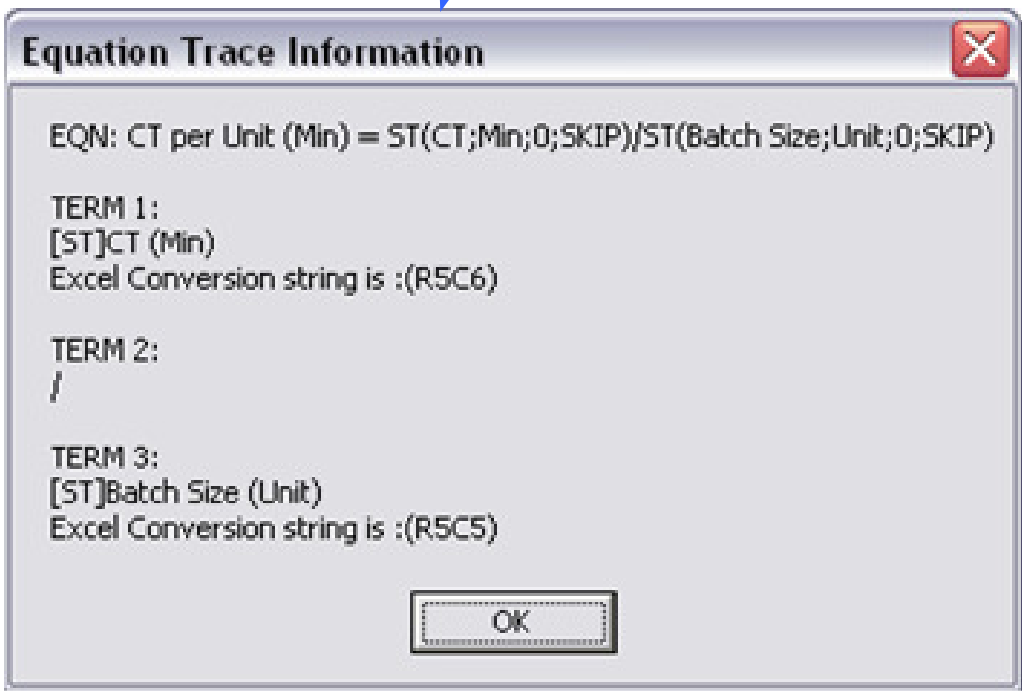
Note: If the “Block Managed Equation” shape is attached to a data shape AFTER it has already been calculated, then you must manually delete its direct equation in Excel before the next Calculator run, otherwise the OLD equation will remain in the spreadsheet.

Trace Value

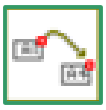
The Trace Value function provides a means of seeing exactly how a Managed Equation is being applied to a data shape.

Simply glue the Trace Value shape to the data shape you wish to investigate. Run the eVSM Calculator, then click the “Display Trace Data” command in the right mouse menu.





Tag Sequence Arrow

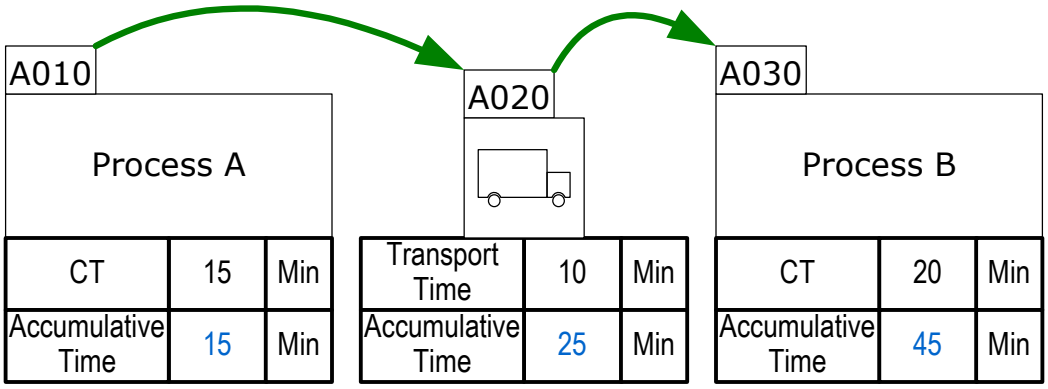


Tag Seq Arrow

The Tag Seq Arrow is used with Managed Equations and allows you to perform upstream downstream calculations.

The Tag Seq Arrow is glued to Operation Tags.

The example below shows how Accumulative Time can be calculated along the value stream with the use of Tag Seq Arrows.



Managed Equation

Accumulated Time =

ST(CT;Min;0;APPLY)

+ ST(Transport Time;Min;0;APPLY)

+ UTS(ACCUMULATIVE TIME;MIN;0;APPLY;SUM)

The Tag Seq Arrow visibility can be set with the switch in the eVSM Toolbar:

eVSM Tag Sequence Check On/Off

Tag Sequence Arrow (Cont'd)

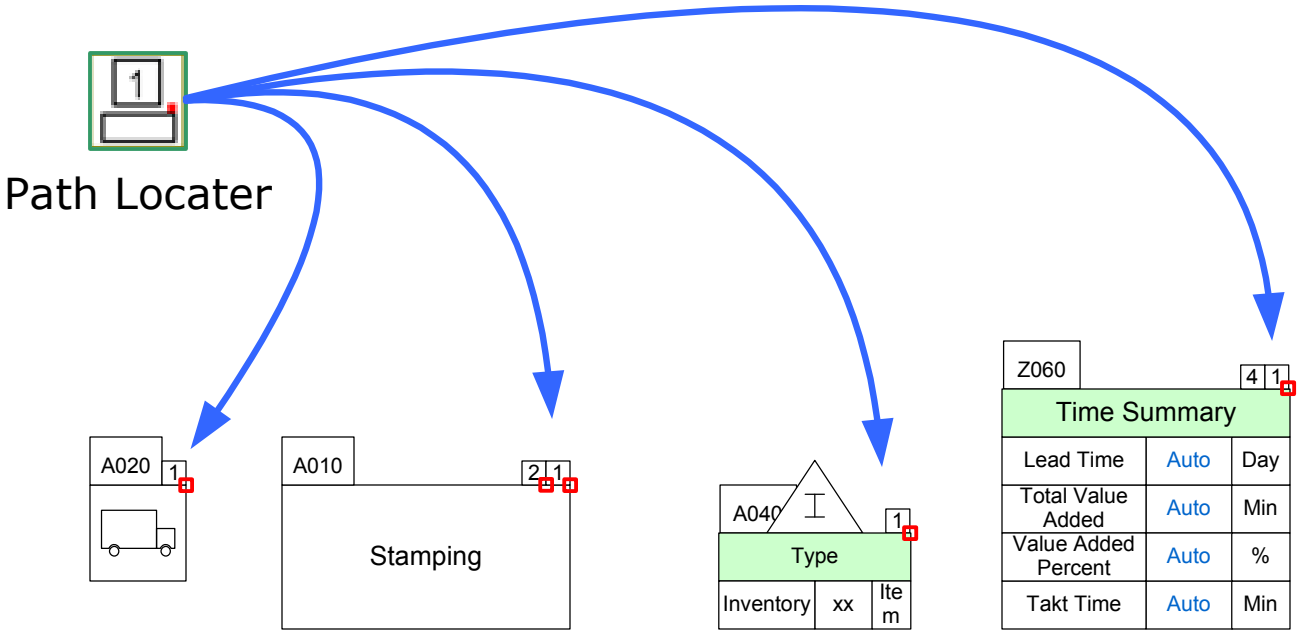
There are two ways to attach tag sequence arrows to tags. The first is to drag out the arrow from the stencil and then glue the two arrow ends to the tags.

The second method is to select a series of tags (or activities) in the correct sequence and then click the eVSM AutoSeq button in the toolbar

eVSM AutoSeq

Path Locater

The Path Locater is used to identify a path that an activity (or other tagable shape) belongs to. The shape is glued above the top right corner of the shape.



An activity can actually belong to none, one, or more paths. In the example above, the “Stamping” activity belongs to path 1 and 2. Similarly, the Time Summary will show results for the sum of Paths 1 and 4.

Path locaters can be glued to each other as long as at least one of them is glued to the activity shape.

The benefit of assigning path numbers to activities is that the associated activity variables (like NVA time) can be summed up across the map in a path specific sense.

Formula Wizard

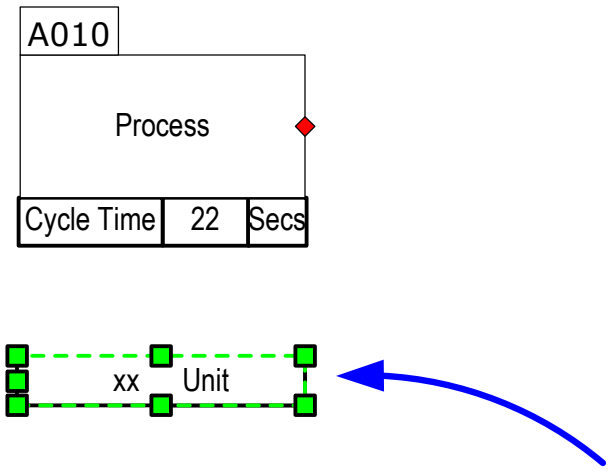
eVSM Formula Wizard

This function provides an alternative method of creating Excel formulas. The formulas are created in Visio by directly picking items from the map. The Formula Wizard also has a presentation function which highlights the participating data shapes on the map and displays the formulas in readable language.

The Formula Wizard is only active immediately after an “eVSM Calculator” run. It is grayed out when inactive.

Using the Formula Wizard to create Excel equations

In the example below, we are going to set **VA Time=Cycle Time for** the A10 activity.

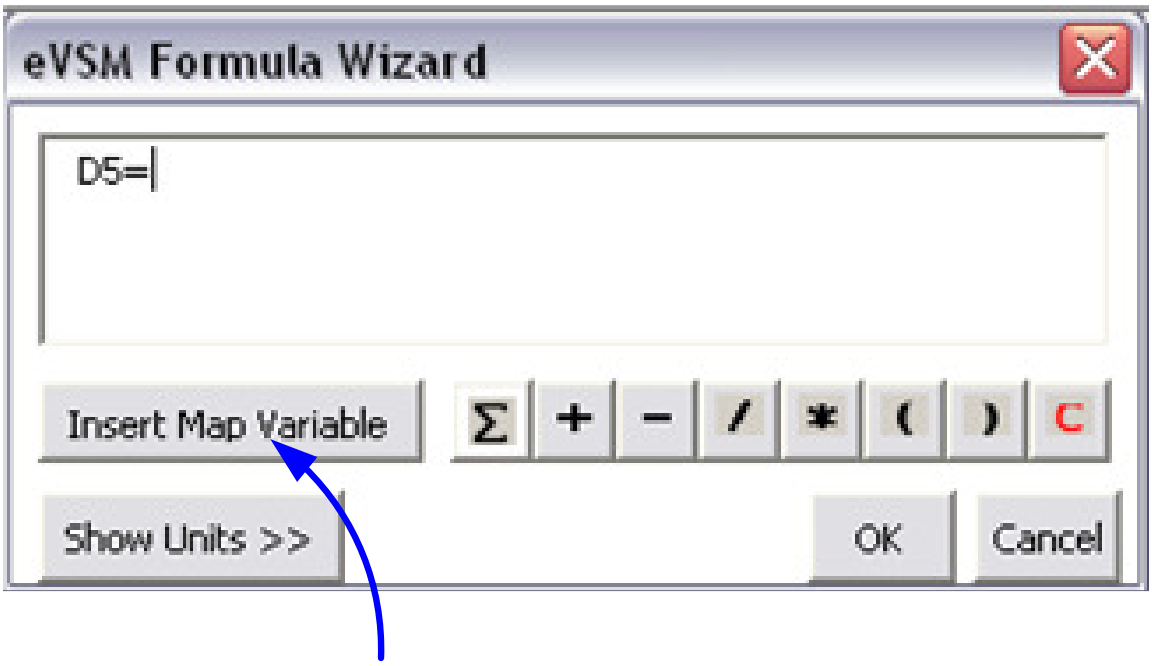


1. First, pick the target shape representing the **VA time.**

Using the Formula Wizard (Cont'd.)

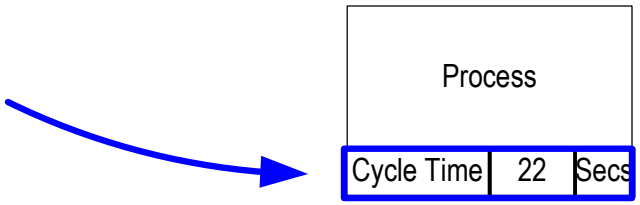
2. Now click the Formula Wizard button in the toolbar.

3. The Formula Wizard text window shows the Excel cell corresponding to the target shape (VA) that was selected.



4. Click the Insert Map Variable button to pick data on the drawing for the the formula.

5. Pick the “Cycle Time” NVU to create the right hand side of the formula

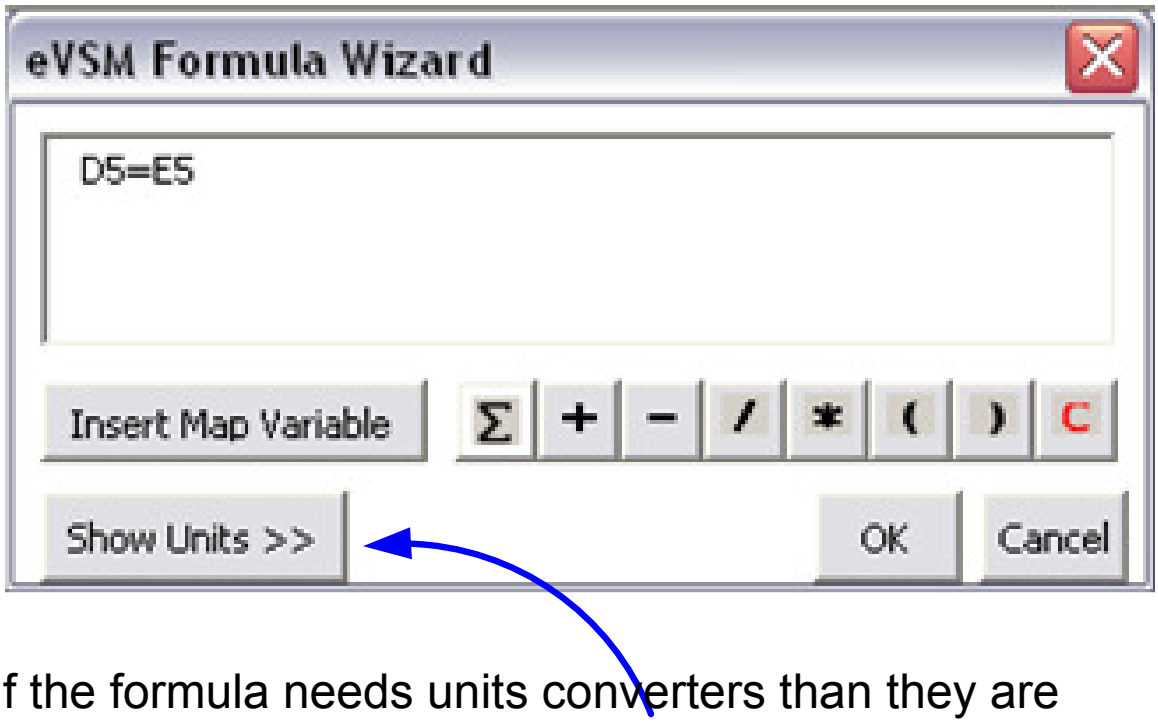


A BLUE border on a shape represents the right hand side of the equation.

A GREEN border on a shape represents the left hand side of the equation.

Using the Formula Wizard (Cont'd.)

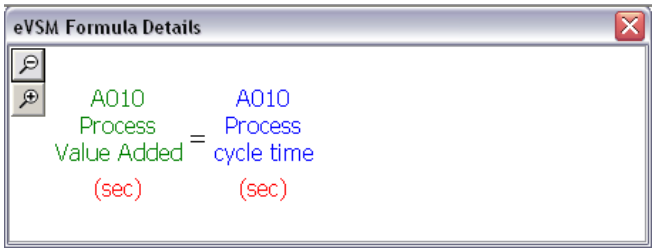
6. Here is the resulting formula. Click “OK” to send it to the spreadsheet.



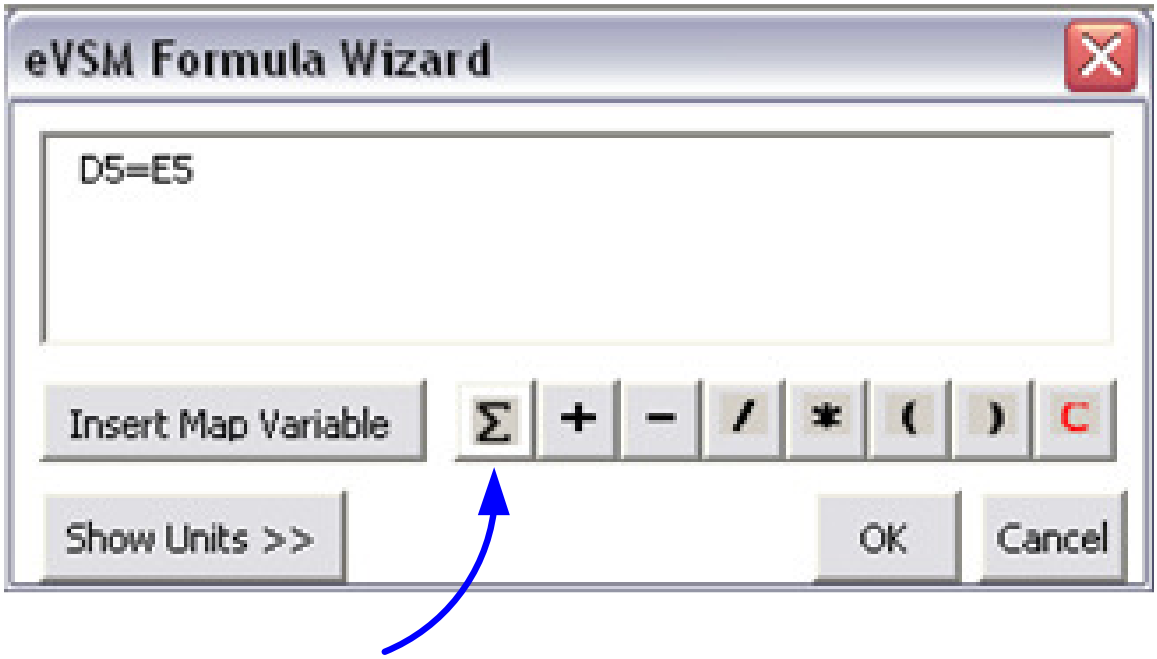
7. If the formula needs units converters than they are available by clicking the “Show Units” button on the form.

   Remember : The formula behaves exactly as if you typed it into the Excel spreadsheet directly. So the units corresponding to each data shape are those that the data column has in Excel.

9. The “Formula Details” window shows the same formula in a more readable language, useful for presentations. Note: formulas cannot be edited in this window.



Using the Formula Wizard (Cont'd.)



10. Use the Summation button to pick a value to be summed across the map. For example, if you need the sum of the VA times, just click the summation button, then select any one VA time shape on the map. eVSM will automatically find all the VA time shapes.

11. If the Formula Wizard Icon is grayed out, it is because the spreadsheet needs to be updated first. Do this by running the eVSM calculator.

15. Working with Tables

Help Movies

These and other short movies on eVSM are available at www.evsm.com/help:

Draw Tables Draw Swimlane Charts

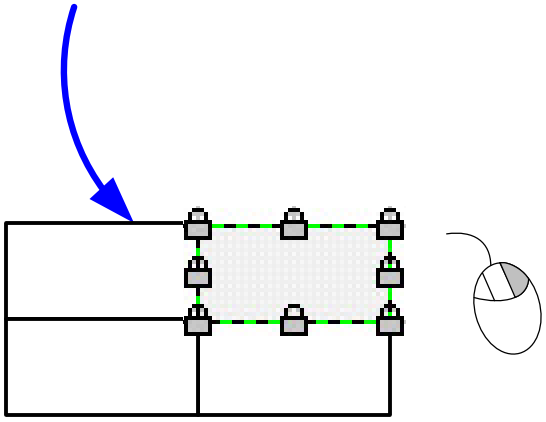
Purpose

The eVSM Table shape was introduced to allow easy creation of box-score tables on the map.

Starter Table

This is a simple starter table that can be further customized:

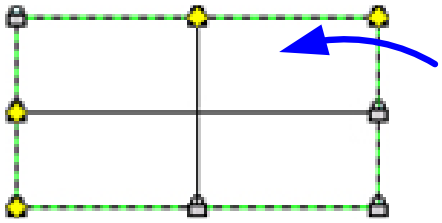
Table



Select Table
View Row and Column Size Adjusters
Adjust Table
Clone Row Below
Clone Row Above
Delete Row
Use as Standard Row Height
Clone Column on Right
Clone Column on Left
Delete Column
Use as Standard Column Width

A right mouse click on any of the table cells brings up a table modification menu (above) allowing for row / column addition and modification.

Resizing Rows and Columns



Pick the “Select Table” command in the right mouse menu to highlight the yellow diamonds. Move these yellow diamonds to the required width and height positions. Then click the “Adjust Table” command in the right mouse menu.

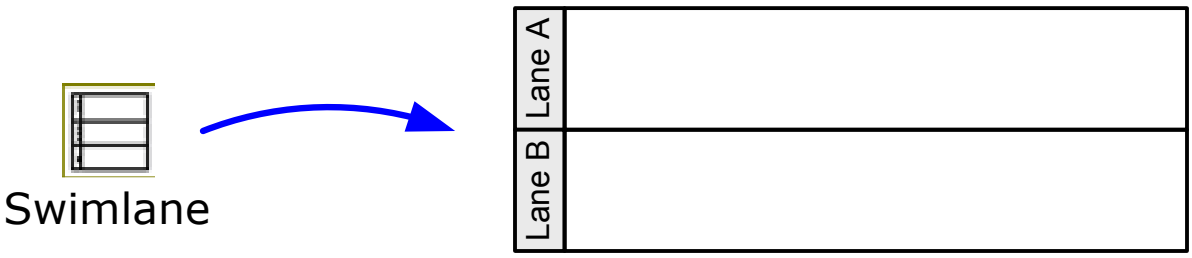
Editing Text

Double-Click on a table cell to change its text.

Moving the Table

To move the table to a new position on the map, click the “Select Table” command in the right mouse menu. Then drag the table to the desired location.

Swim Lane Table



The eVSM Swimlane function allows drawing of VSMs and flowcharts in swimlane layout. The eVSM Swimlane shape is an implementation of the eVSM Table function. Therefore, row manipulation and resizing works exactly as shown above for the Table function.

To calculate totals or plot charts for each lane, see the Path Locator function.

Note: The swim lane function in native Visio is NOT supported with eVSM. The eVSM Calculator will not work if the Visio swim lane shape is on your drawing page.

Tables and Spreadsheets

You can transfer table cell data to the spreadsheet with the “eVSM Calculator” button

eVSM Calculator

To transfer the data the table has to be tagged first.

A10

	Current State	Future State
Lead Time	23 days	2 days
Capacity	1057	2000

Each table creates its own worksheet page in the Excel Workbook. If the page name is “CS” and the tag is “A10” then the worksheet in Excel will be called “CS_A10”. If formulas are created within cells in the spreadsheet, the results of those formulas will appear in the table when the eVSM Calculator button is clicked.

16. Plotting VSM Charts

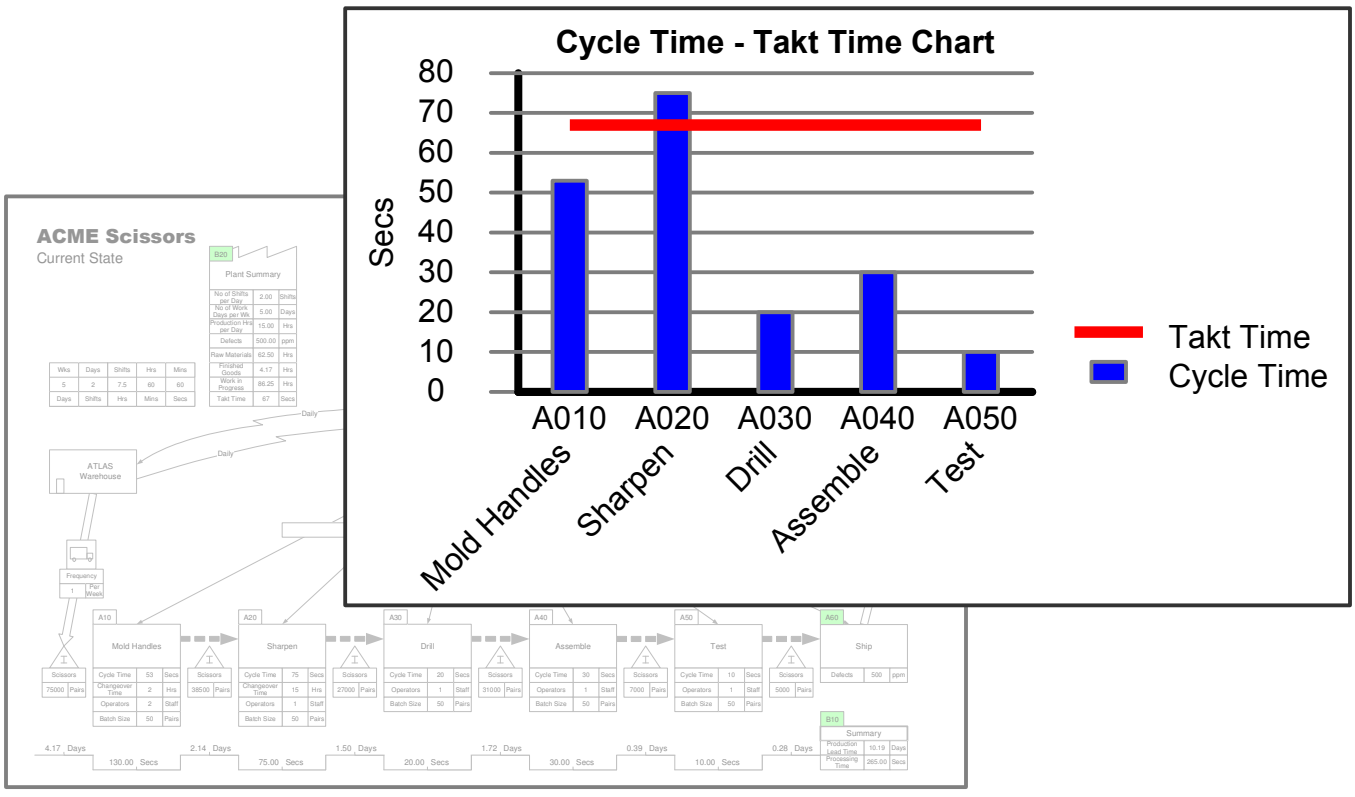
Help Movies

These and other short movies on eVSM are available at www.evsm.com/help:

- Draw Combination and Pareto Charts
- Draw Milestone Charts
- Draw Cumulative Bar Charts
- Draw Ladder Charts

XY Charts (Combination and Pareto Charts)

Any numeric data available for analysis in eVSM can be plotted on a chart such as this:



XY Charts (Cont'd)

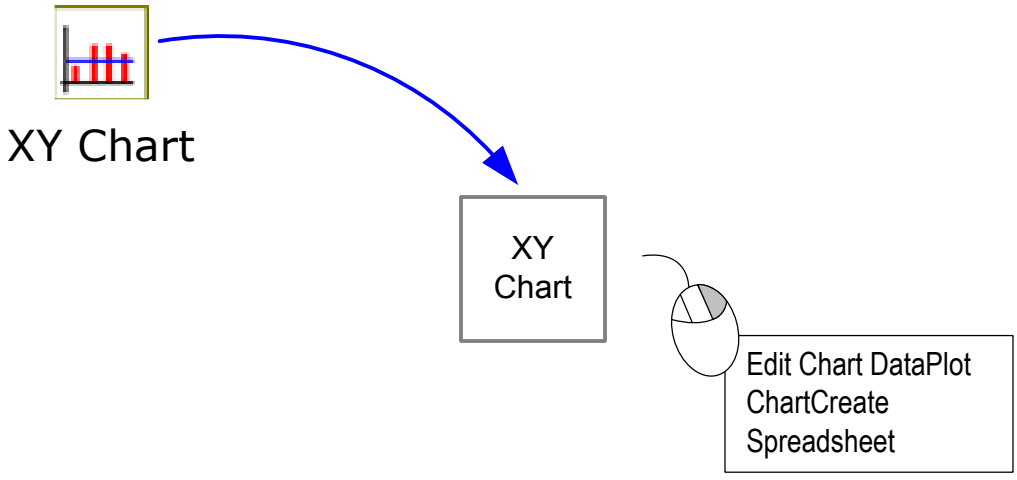
Before creating a chart, you must ensure that the data to be plotted is:

- Contained in eVSM data shapes
- The data shapes are glued to the parent rowmaker shapes
- Rowmaker shapes are tagged with Operation Tags

Hint: Use the Glue Check and Excel Check buttons in the eVSM toolbar to verify.

Steps to Plot XY Charts

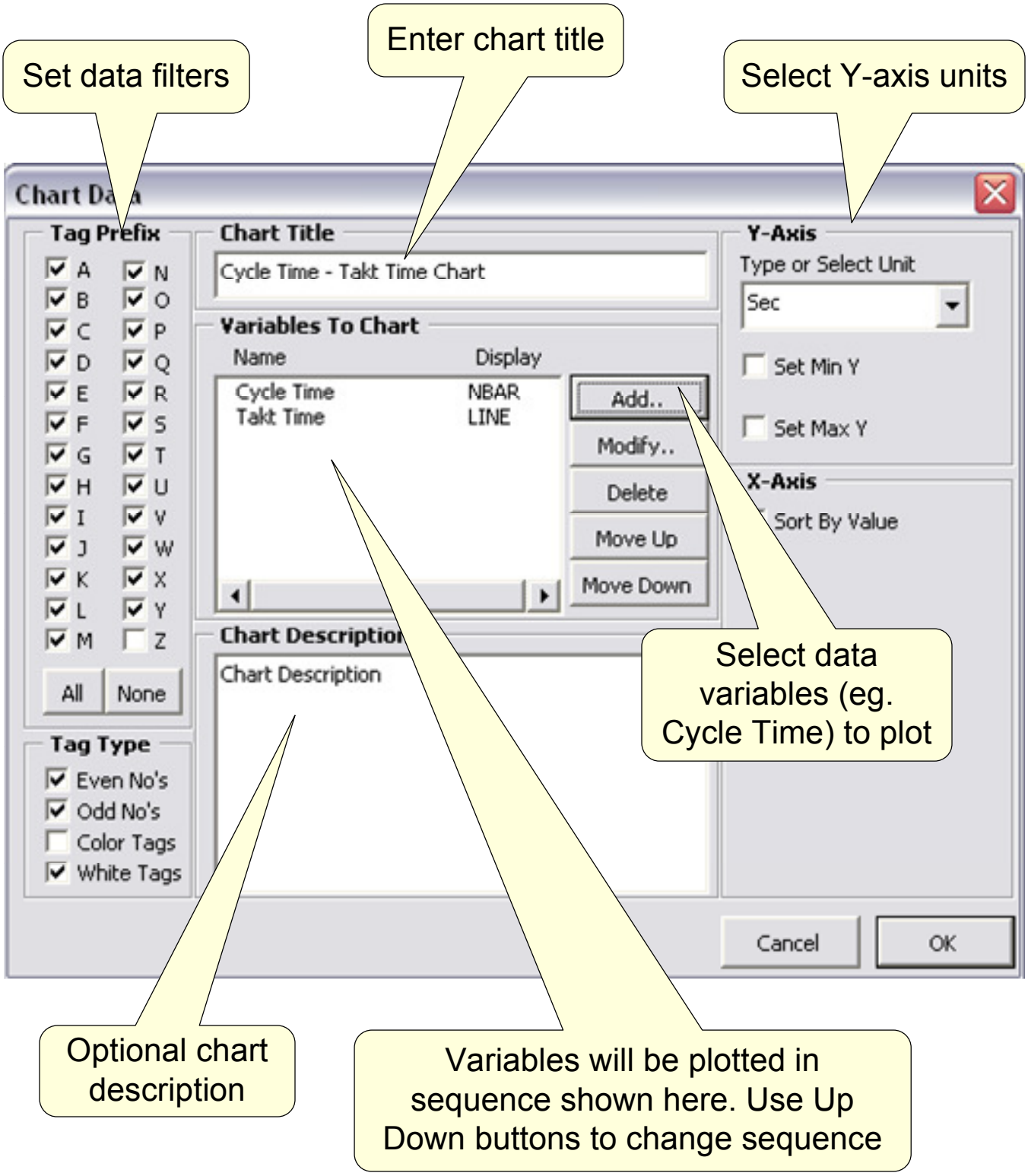
1. Drag out the XY Chart icon from the stencil, and place it anywhere on the map.



   Right mouse click on the shape and select the "Edit Chart Data" command.

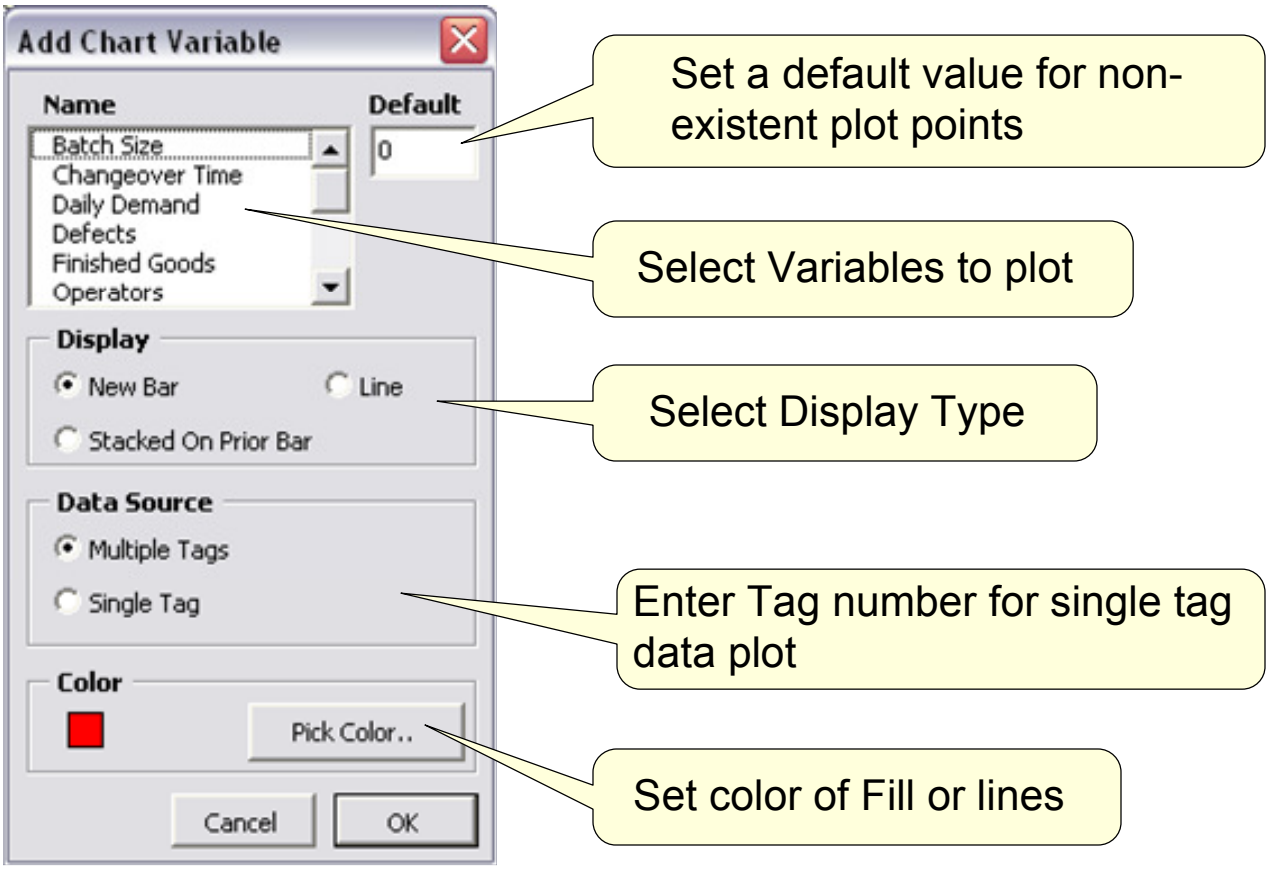
Steps to Plot XY Charts (Cont'd)

2. Set up chart parameters and click "Plot Chart" command in the right mouse button menu.

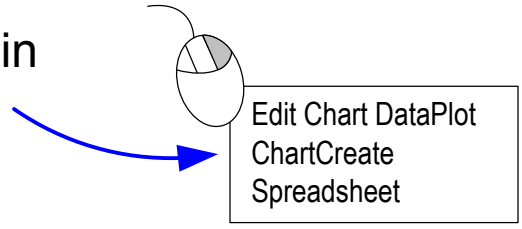


Steps to Plot XY Charts (Cont'd)

Options for Chart Variables:



3. Click the Plot Chart command in the right mouse button menu.

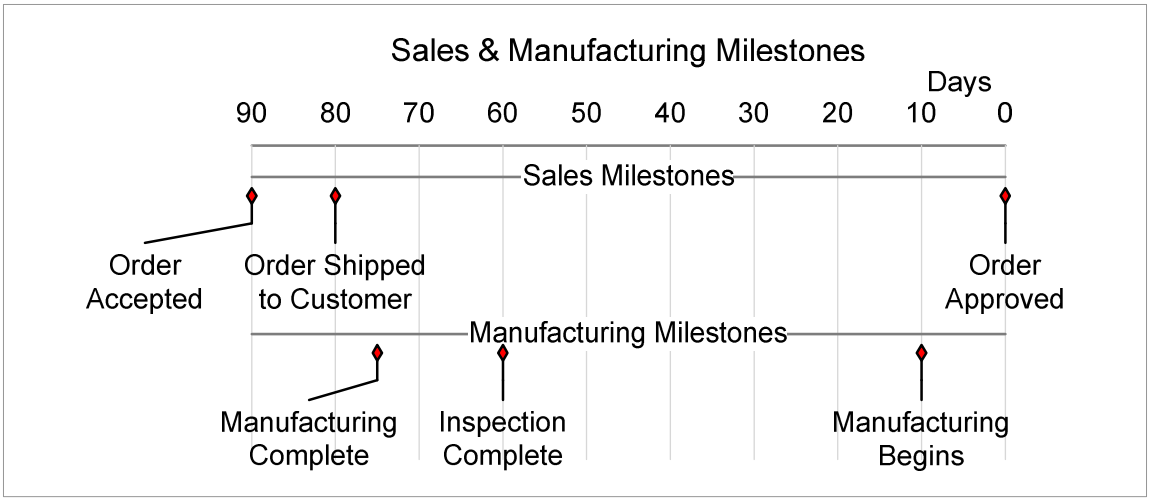


Notes:

- Each eVSM Chart is a group of simple shapes. Avoid ungrouping these as this may displace some of the shapes.
- Chart will update automatically when the Calculator or Fast Update is run. To update the chart manually, use the "Update command in" the Chart's right mouse button menu.

Milestone Charts

The Milestone Chart allows you to plot key milestones on a combined timeline.



Steps to Plot a Milestone Chart

1. Get data ready in this format:

C180

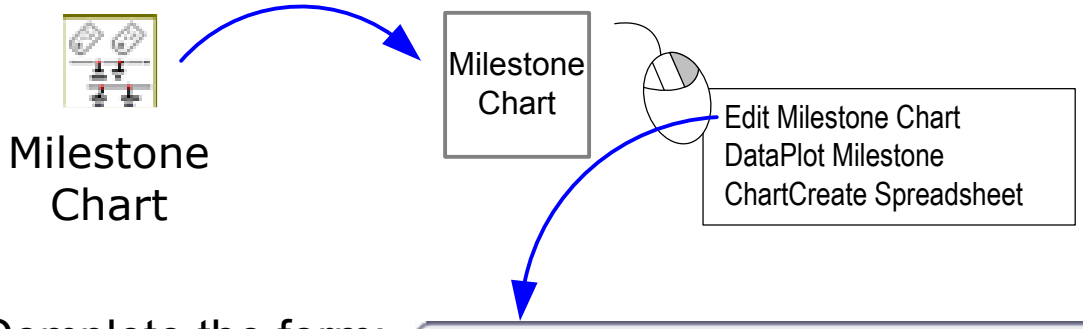
Sales Milestones		
Order Approved	90	Days
Order Shipped to Customer	10	Days
Order Accepted	0	Days

C190

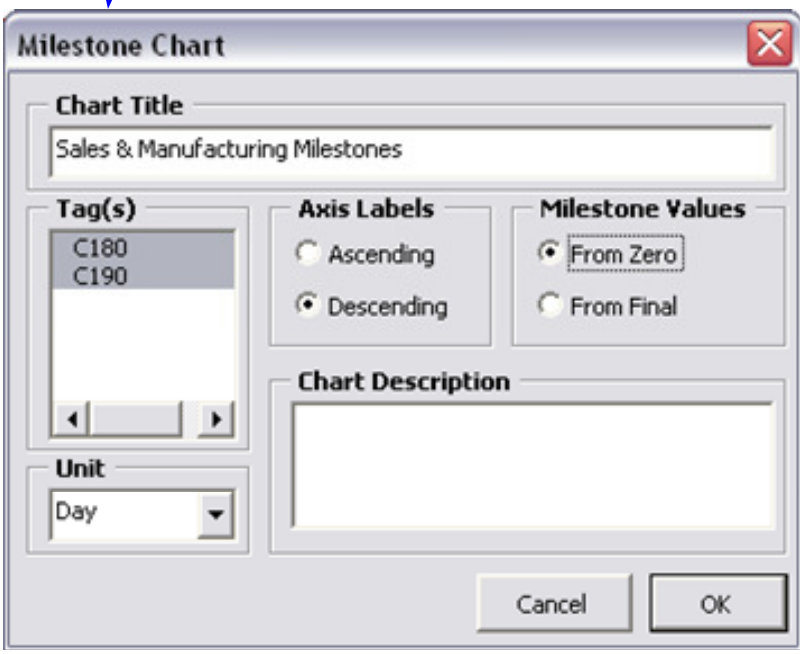
Manufacturing Milestones		
Manufacturing Begins	80	Days
Inspection Complete	30	Days
Manufacturing Complete	15	Days

Steps to Plot a Milestone Chart (Cont'd)

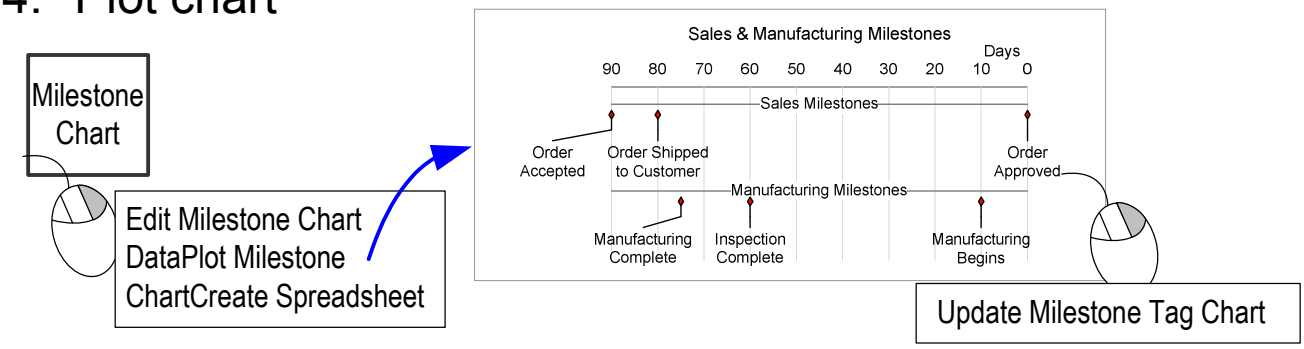
2. Drag out the Milestone Chart icon and click the "Edit" command in it's right mouse button menu.



3. Complete the form:



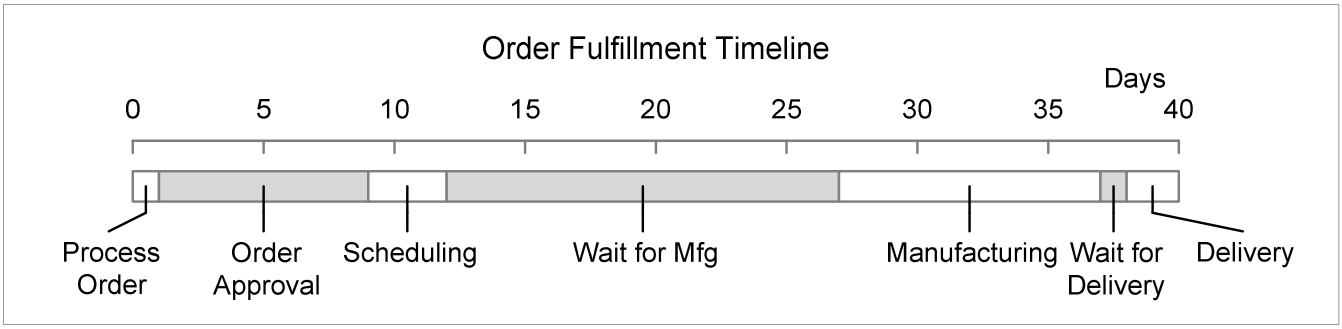
4. Plot chart



5. Use the "Update.." command in the chart's right mouse button menu to update the chart when the data changes.

Cumulative Bar Charts

The Cumulative Bar Chart allows you to visualize the phases of a value stream on a timeline.



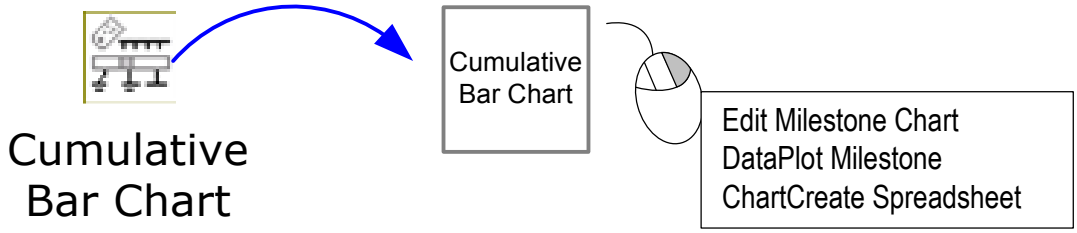
Steps to Plot a Cumulative Bar Chart

1. Get data ready in this format:

B070

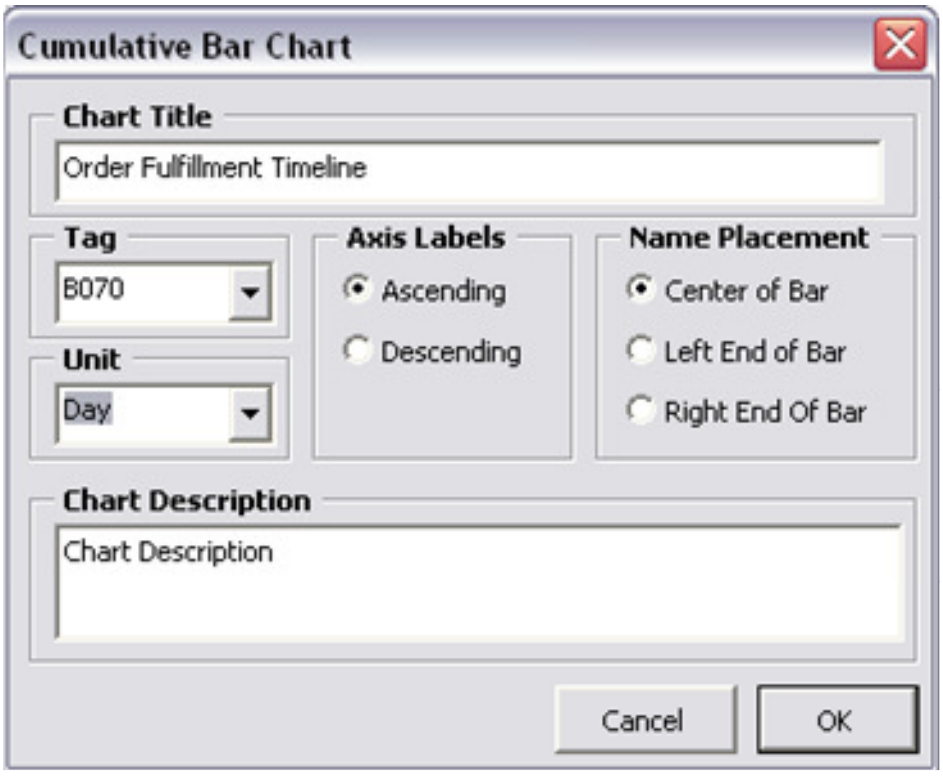
Order Fulfillment Timeline		
Process Order	1	Days
Order Approval	8	Days
Scheduling	3	Days
Wait for Mfg	15	Days
Manufacturing	10	Days
Wait for Delivery	1	Days
Delivery	2	Days

2. Drag out the Cumulative Bar Chart icon and click the “Edit” command in its right mouse button menu.

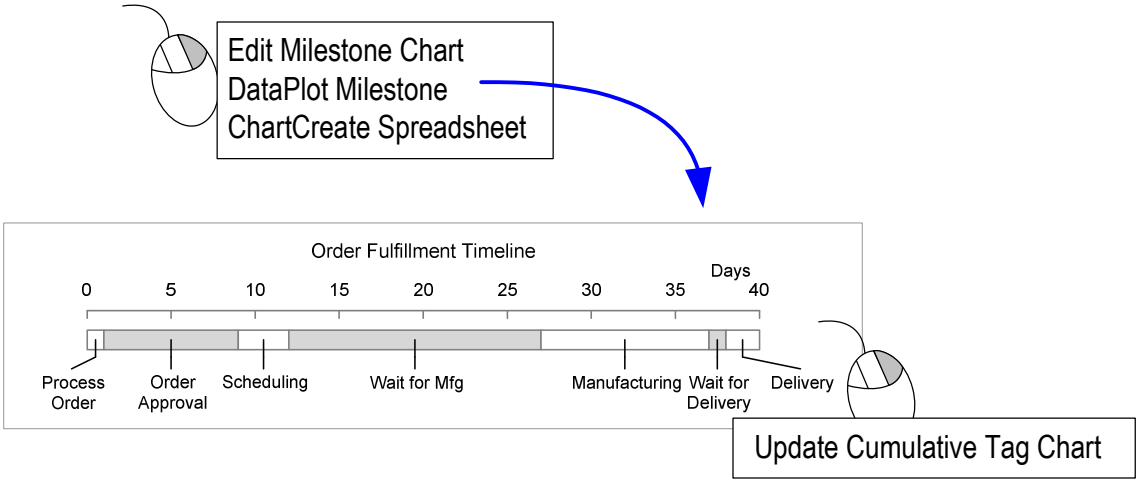


Steps to Plot a Cumulative Bar Chart (Cont'd)

3. Complete the form:



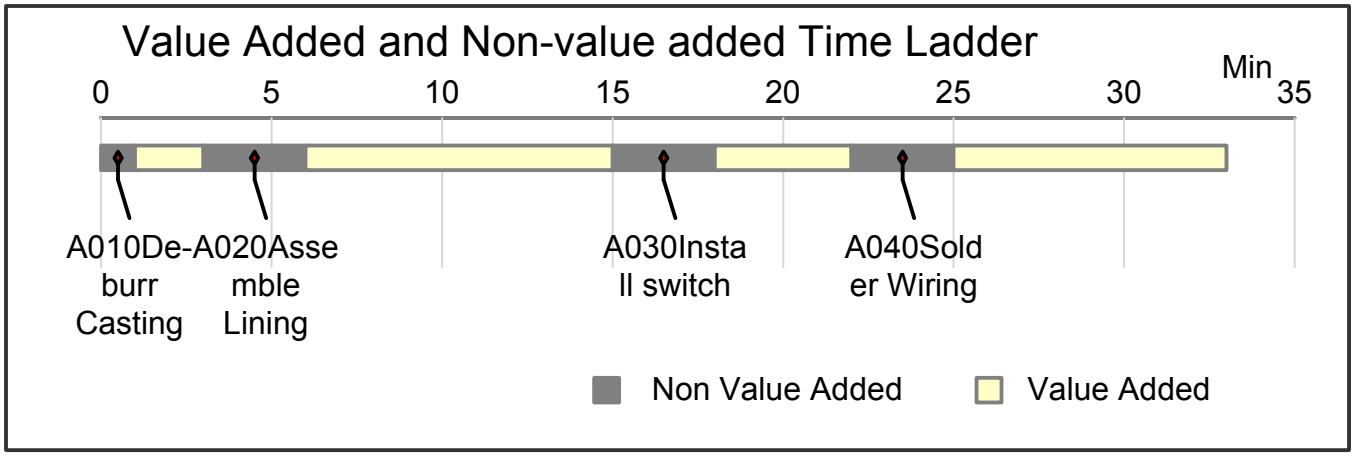
4. Plot the chart:

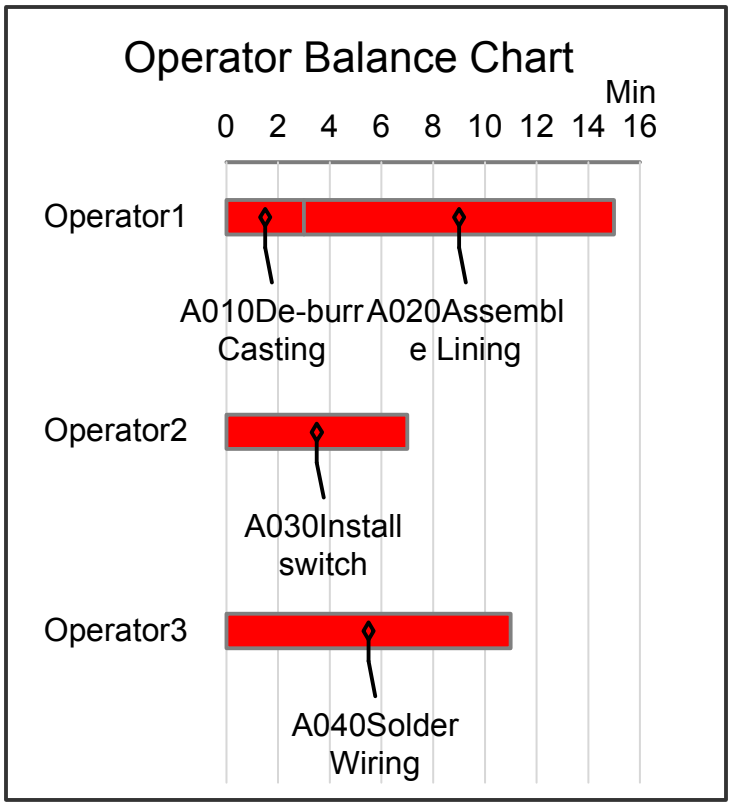


5. The chart will update automatically when the Calculator or Fast Update is run. To update the chart manually, use the Update command in the Chart's right mouse button menu.

Ladder Charts

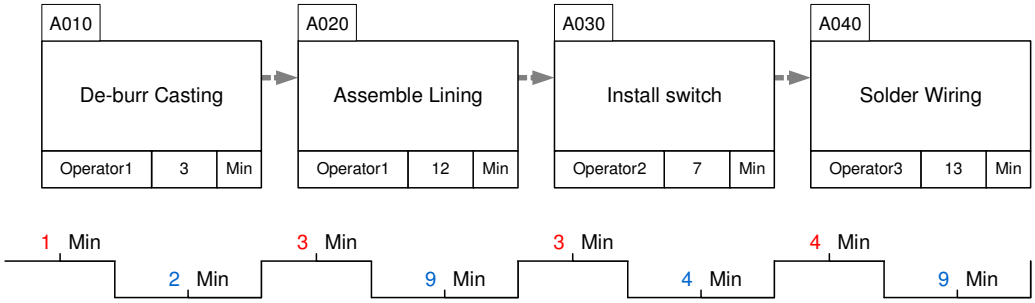
The Ladder Chart shape allows you to create timeline and operator balance charts such as the following:



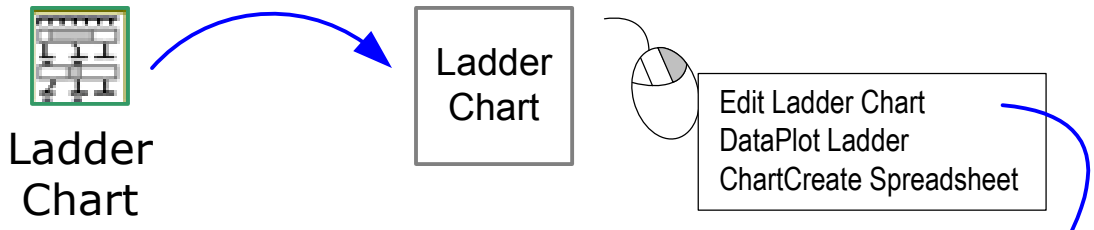


Steps to Plot a Timeline Ladder Chart

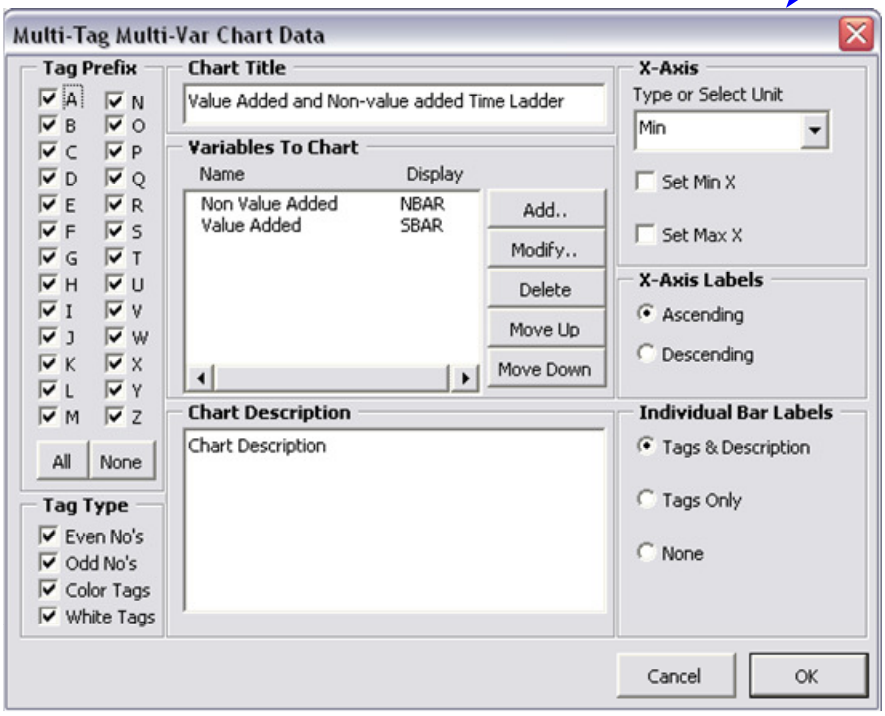
We will plot a Timeline Ladder for the VA/NVA times from this VSM.



1. Drag out the Ladder Chart icon and click the “Edit” command in it’s right mouse button menu.

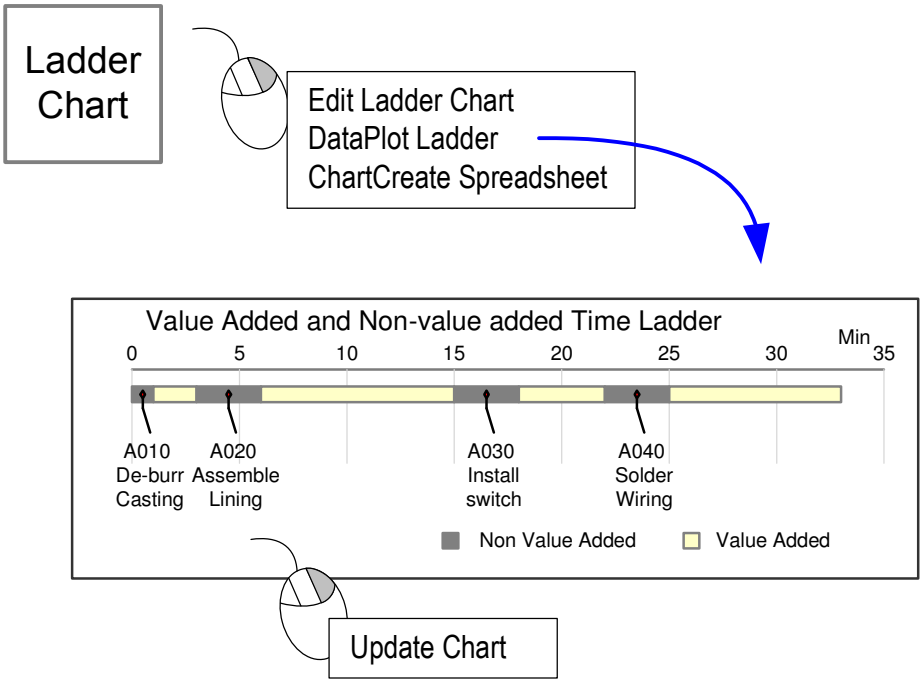


2. Complete the form:



Steps to Plot a Timeline Ladder Chart (Cont'd)

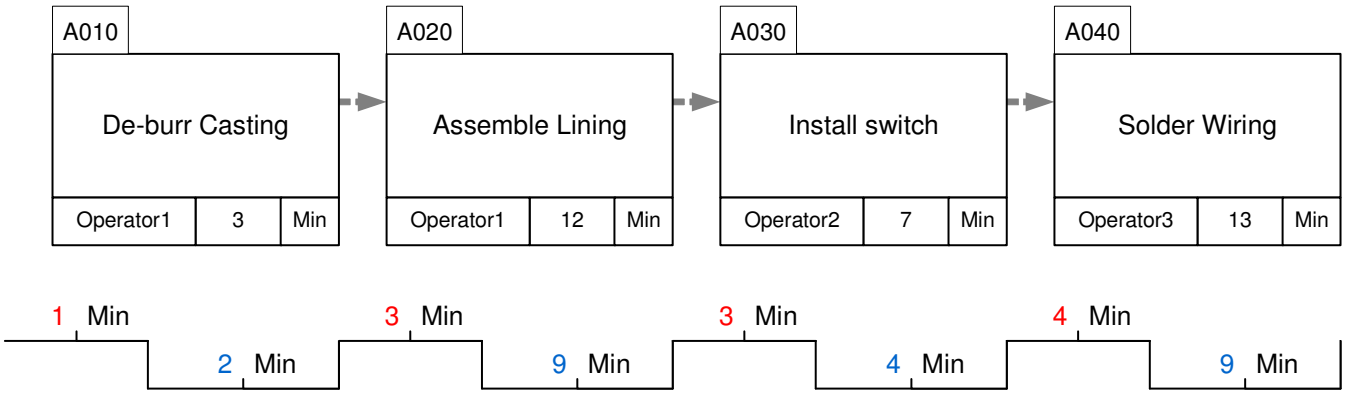
3. Plot chart



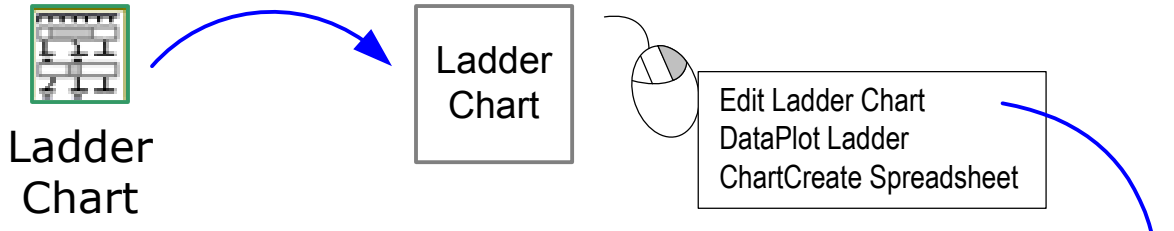
4. The chart will update automatically when the Calculator or Fast Update is run. To update the chart, manually, use the "Update Chart" command in the chart's right mouse button menu.

Steps to Plot an Operator Balance Chart

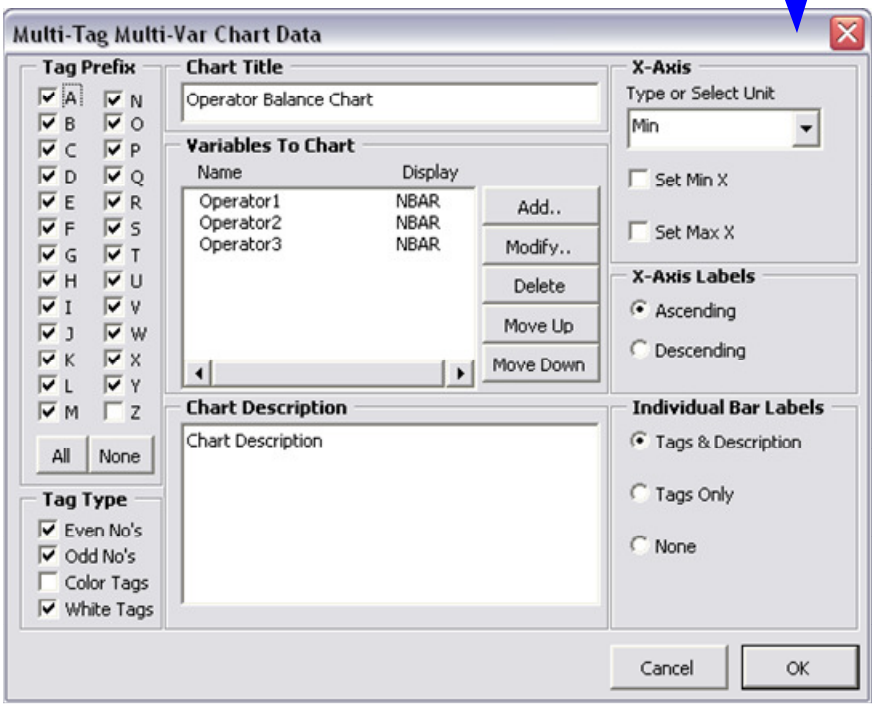
Here is our data:



1. Drag out the Ladder Chart icon and click the Edit command in it's right mouse button menus

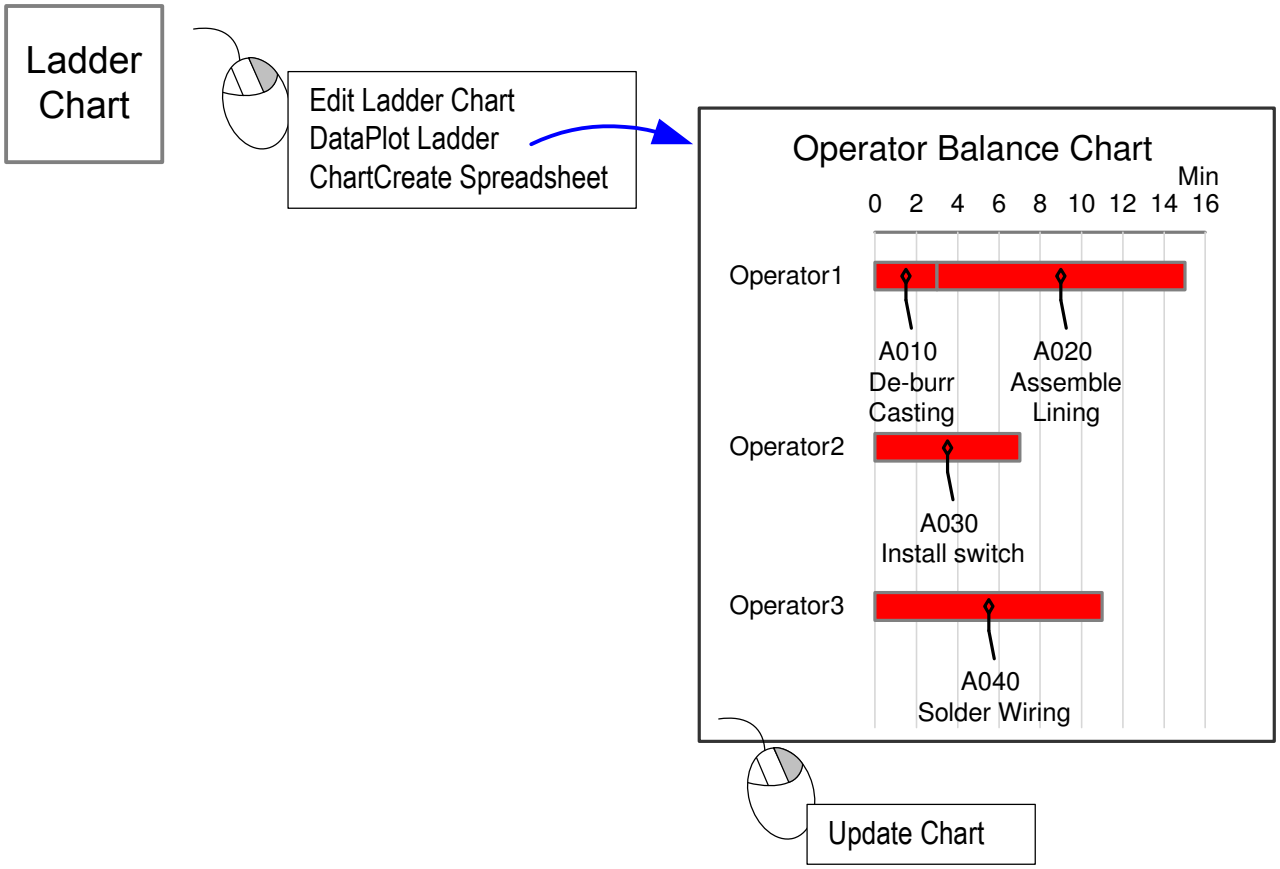


2. Complete form



Steps to Plot an Operator Balance Chart (Cont'd)

3. Plot the chart:



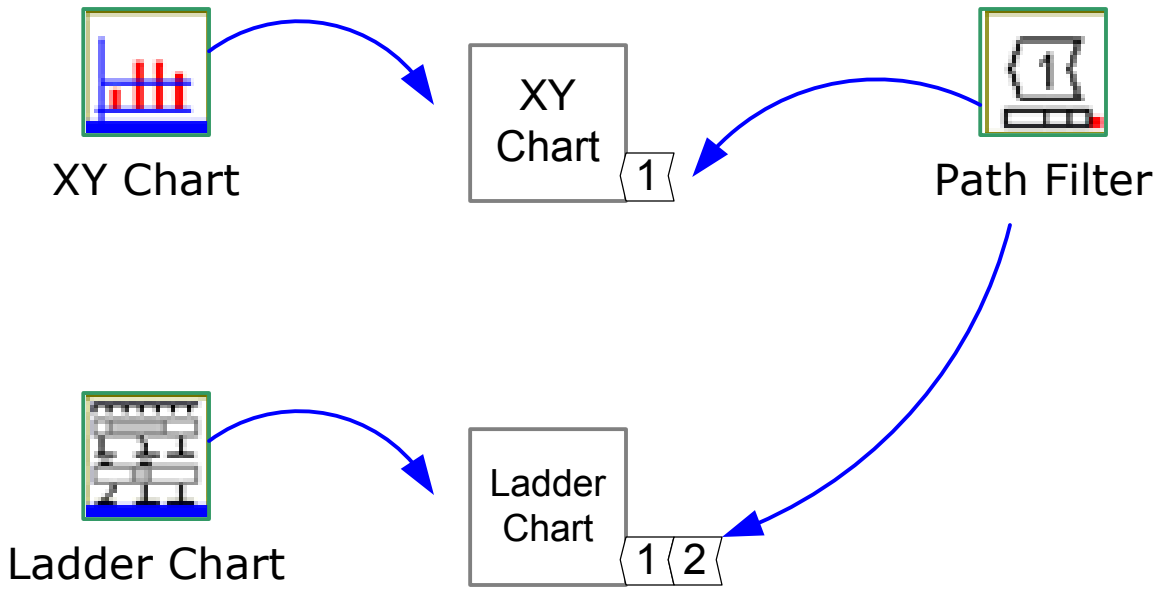
4. The chart will update automatically when the Calculator or Fast Update is run. To update the chart, manually, use the "Update Chart" command in the chart's right mouse button menu.

Filtering data that is plotted on a Chart

The forms associated with each chart provide some filtering of the activities that contribute data to these charts primarily via the tag prefix, its number, and its color.

In addition, the XY Chart and the Ladder chart allow activity data to be used only from activities on given paths (as specified by gluing path locaters on those activities).

To filter in this way simply glue the path filter shape(s) onto the bottom right corner of the chart box as shown below



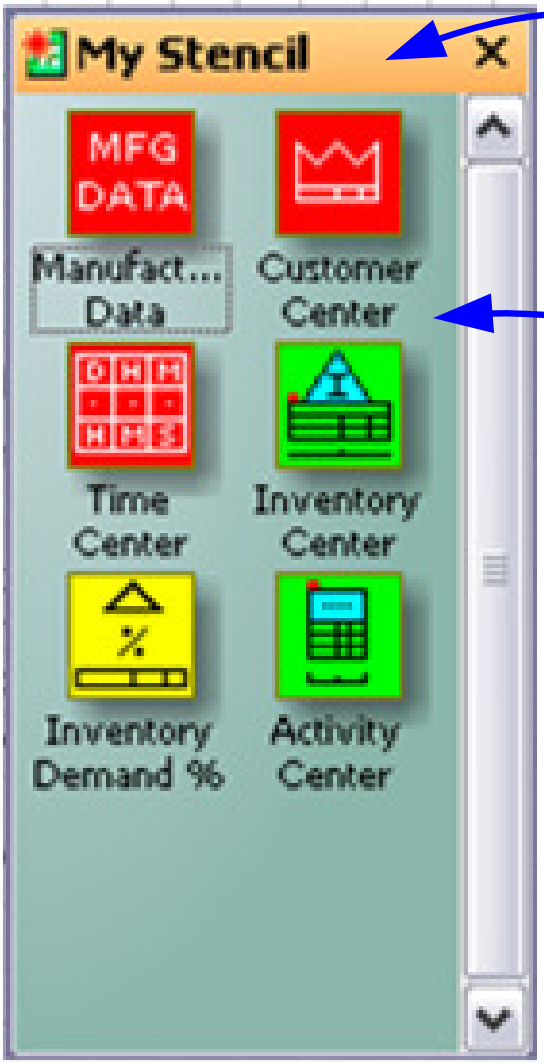
In the case of the ladder chart above, data is taken from any activity that is on EITHER path 1 or path 2. If no path filters are glued onto the chart boxes then data is taken from all activities.

17. Stencil Maker

What is Stencil Maker ?

Create your own customized Stencils using shapes either from one of the existing Quick Stencils of build one from scratch.

Customized Stencil



You can name your own stencil and distribute it.

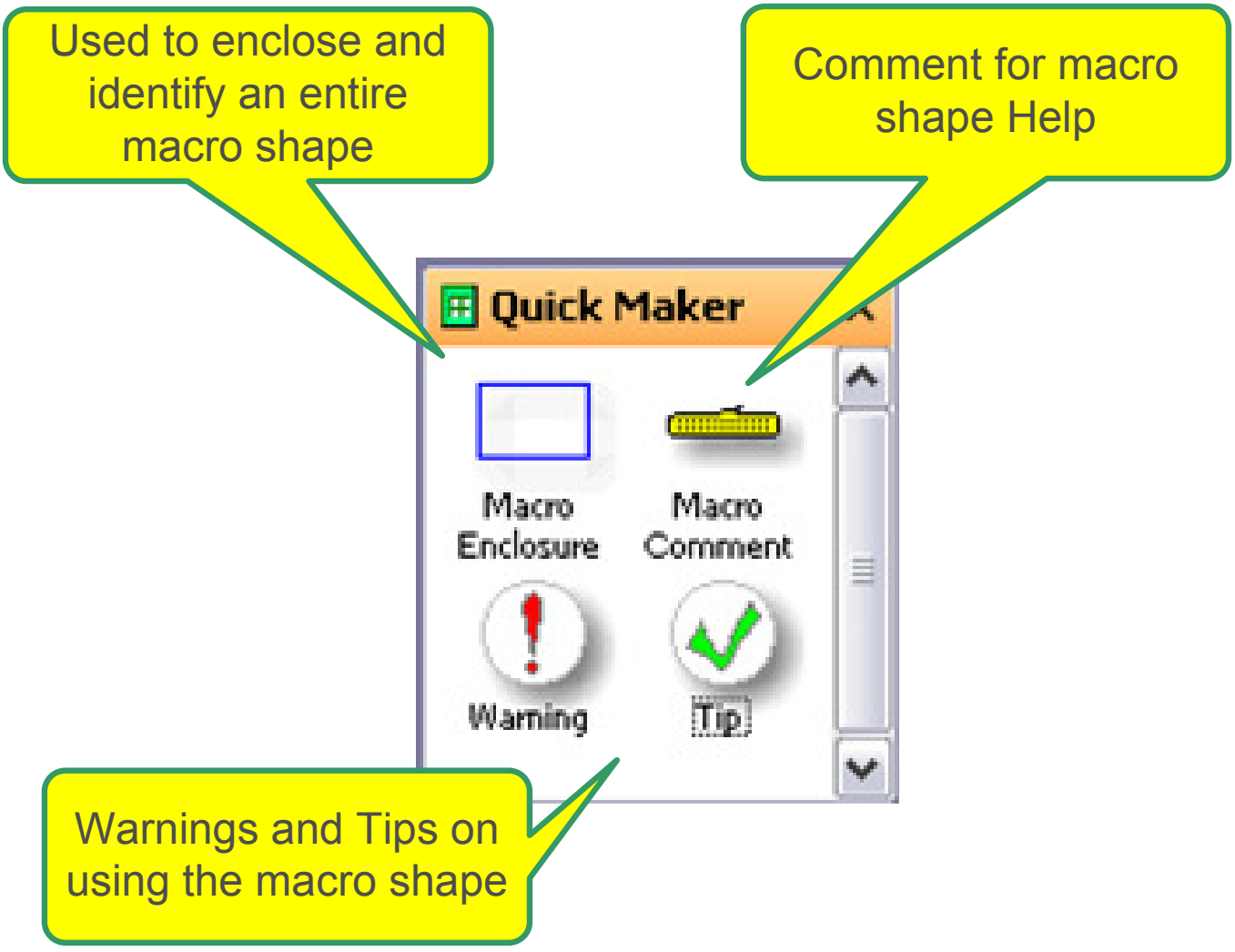
Have as few or as many shapes as you need in your stencil.

Can My Stencil be used on existing maps ?

You can only use your stencil for completely NEW maps. The stencil relies on a standard set of names, units and eqn's that old maps will not be compliant to.

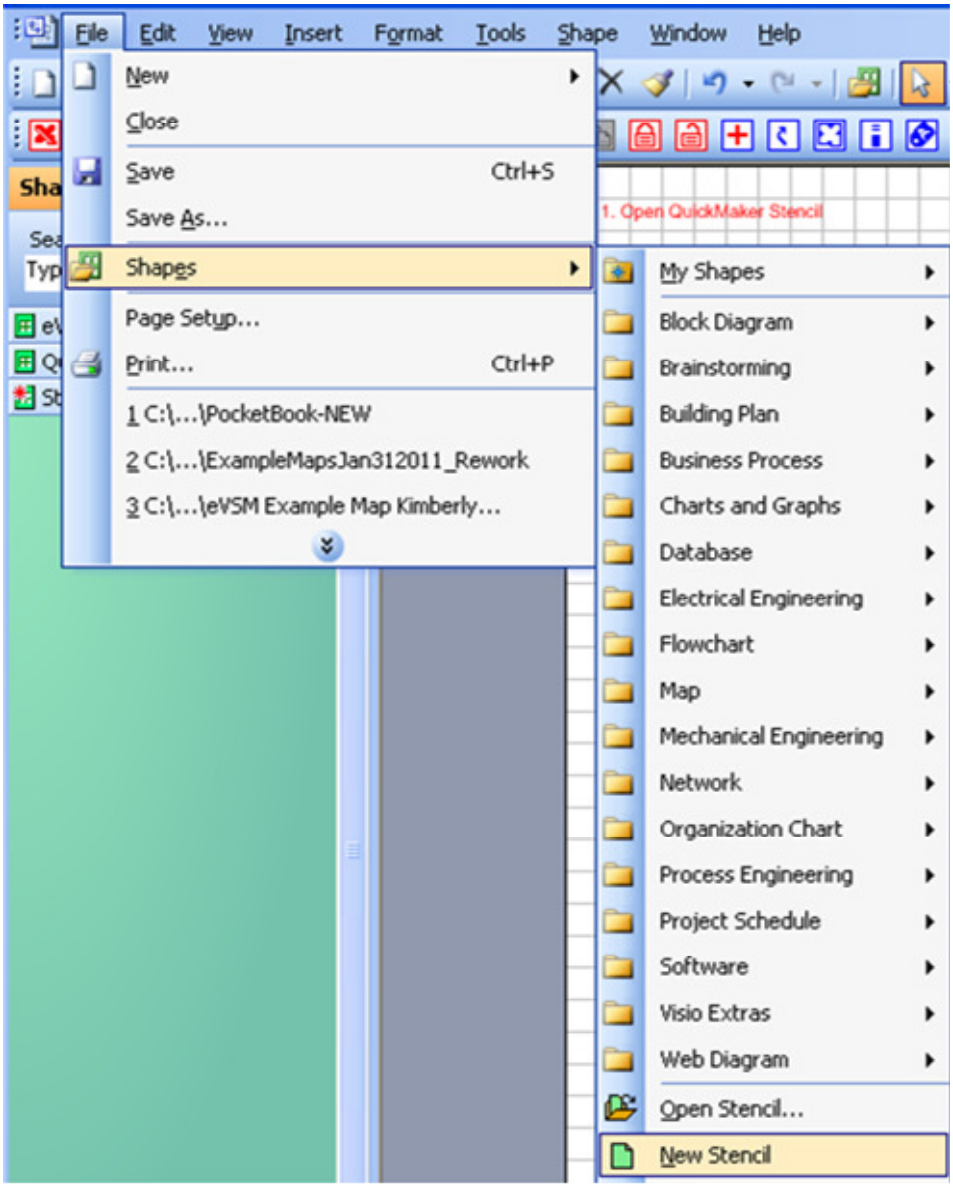
Quick Maker Stencil

Open the Quick Maker Stencil from the File Menu:
File – Shapes – Open Stencil (and navigating to: C:\Program Files\GumshoeKI\Visio2002\Setup\Solutions) and selecting QuickMaker.vss



Create your new stencil

Create a new Stencil by selecting New Stencil from the file menu.

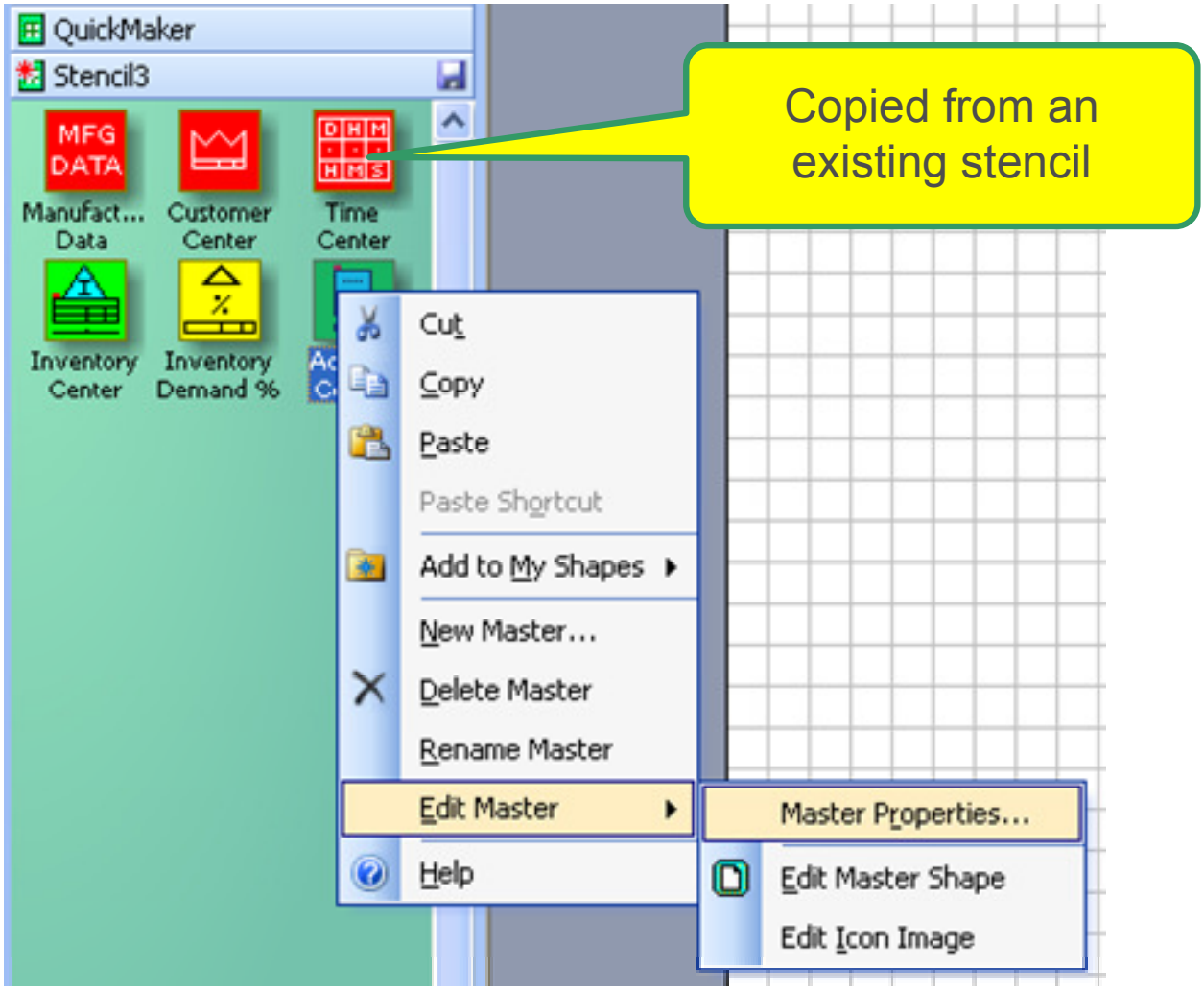


When you create a new stencil it will be in edit mode. Right click on the stencil header and open the properties dialog box to name you stencil in the Title field.

Create Icons in the new stencil

Populate your stencil with icons by copying an icon from an existing stencil and pasting it in your new stencil.

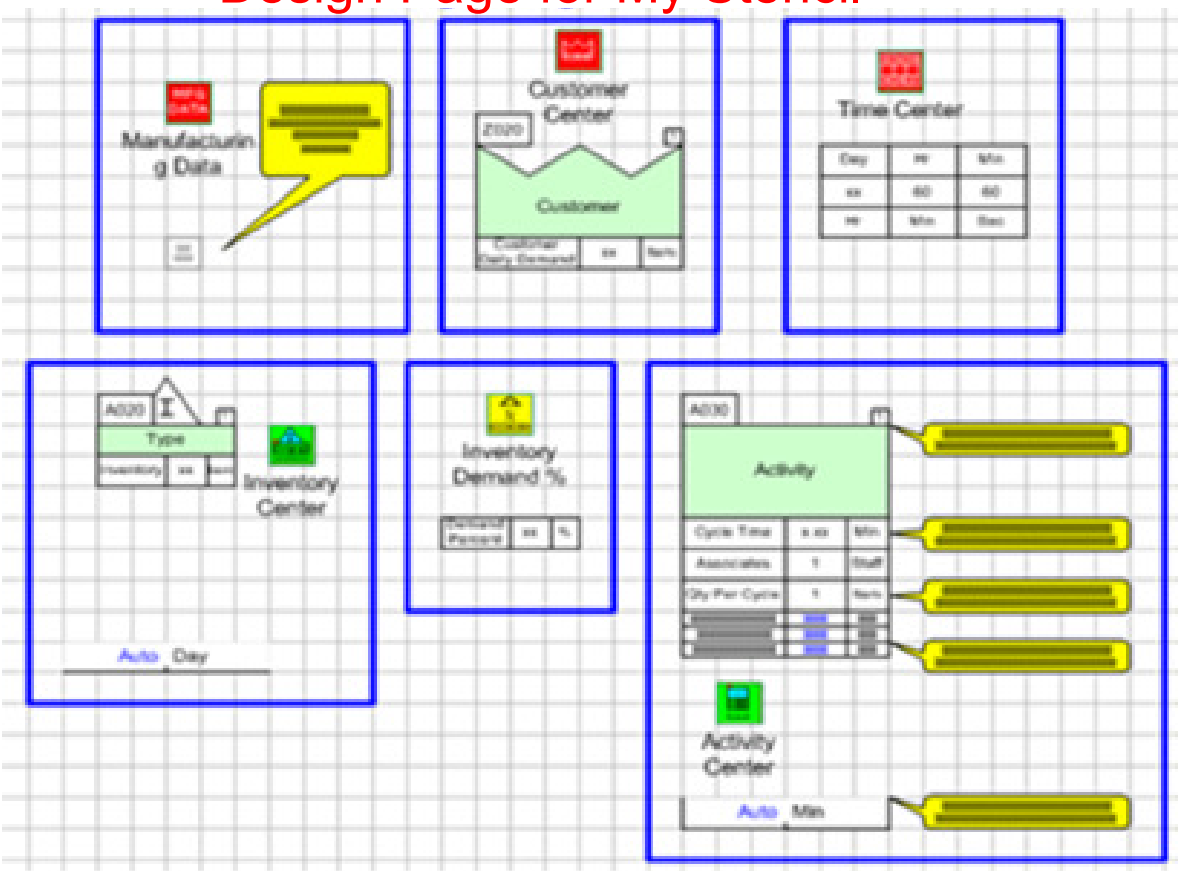
The Icon in a Stencil is called a Master. You can rename the Master and Change its Image by right clicking on the the Master. Editing the Image opens up a bitmap editor in Visio.



Design Page

The most important piece in Stencil creation will be the Design page. This is where you will create the shapes that go into your stencil. It is also where you will create help for your shapes. Any changes that need to made to a stencil should be done here and then regenerating the Stencil from the Design Page.

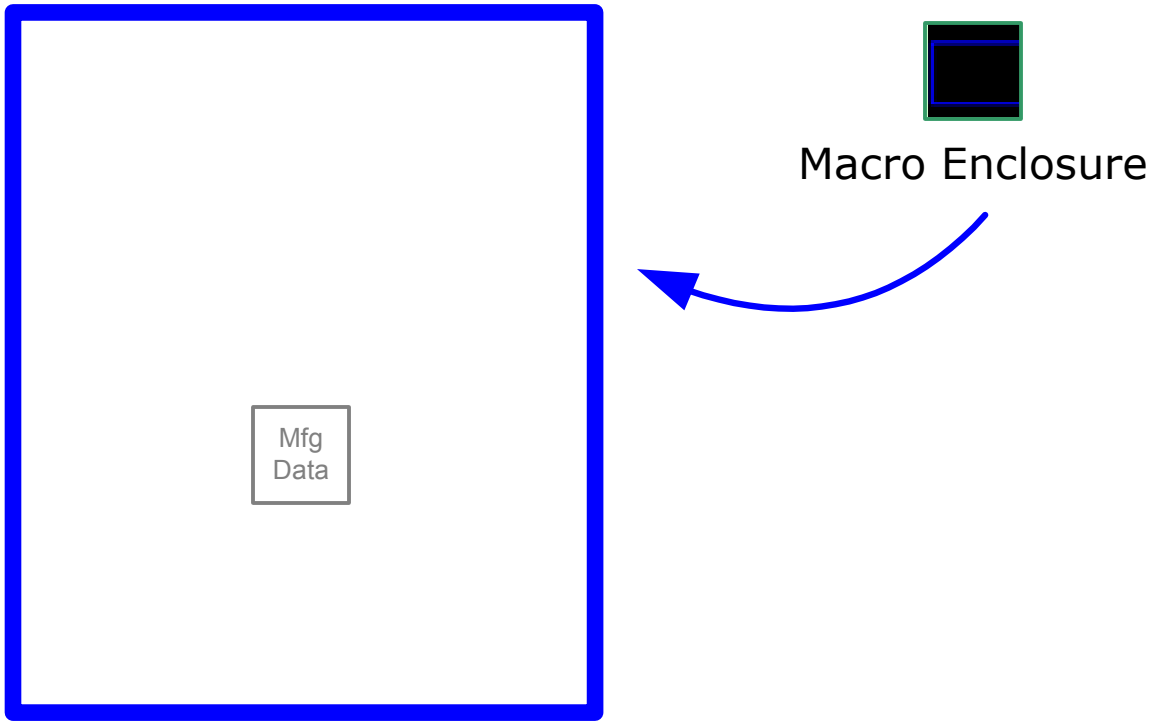
Design Page for My Stencil



There are two ways to create the shapes for your stencil: 1) By using shapes from one of the Quick Stencils (but you cannot mix shapes from different stencils), or 2) Using base eVSM to build all your shapes from scratch.

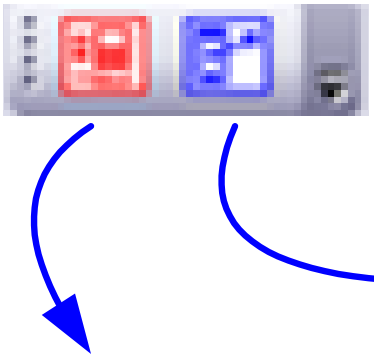
Design Page – Cont'd

Create a Design Page for the New Stencil. On a new page create the macro shapes for the stencil, use the Macro Enclosure from the Quick Maker Stencil and place it around your new macro shape. Resize as necessary, but leave enough room to place the Icon Image in the Macro Enclosure as well. Use the Yellow call-outs to write help text for the Macro.



TemplateMaker Toolbar

Open the eVSM Templatemaker Toolbar :
Tools> Macros> eVSM Icons >
eVSMTemplateMaker>CreateTemplateMakerToolbar.



Icon Maker

eVSM Macro
Maker 3

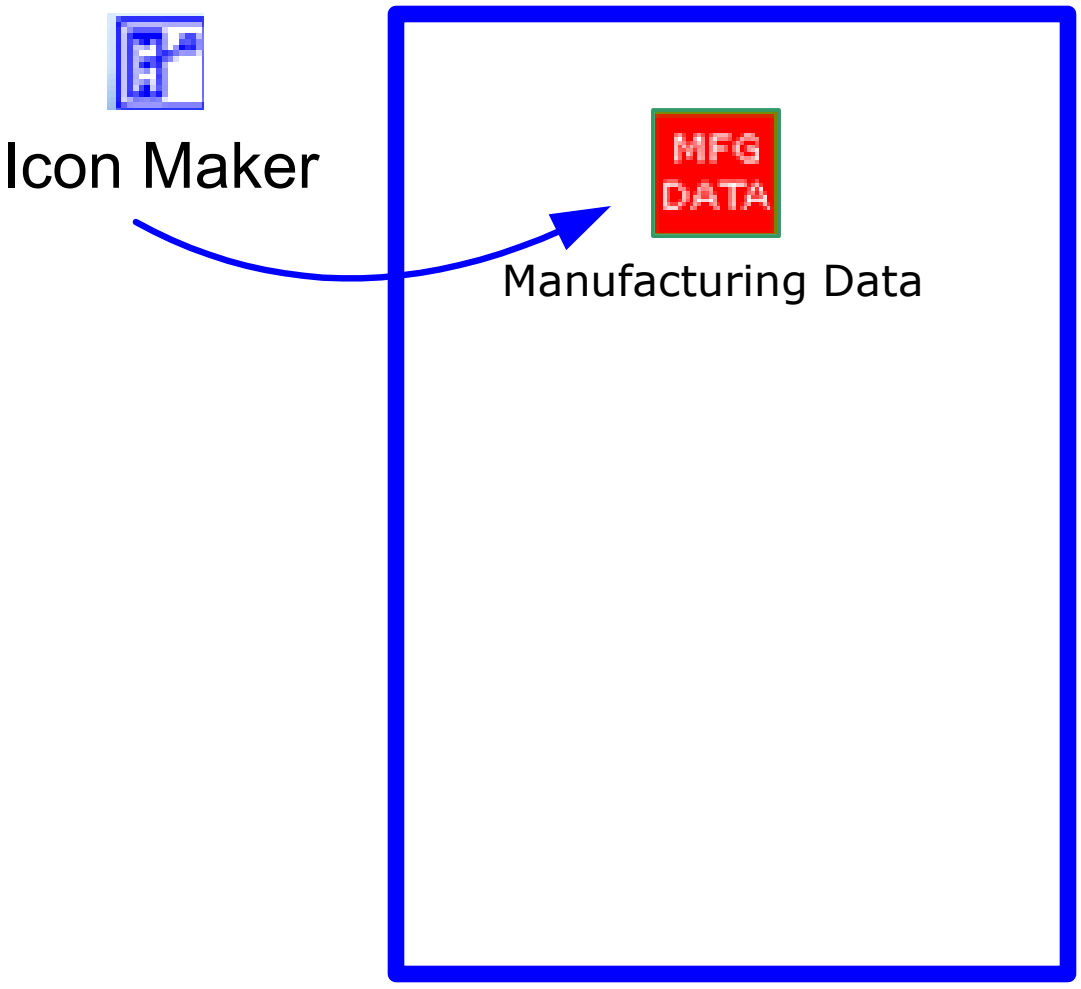
The Template Maker Toolbar consists of two buttons:

eVSM Macro Maker 3 – Used to generate a stencil from the design page

Icon Maker – used to generate Icons for shapes

TemplateMaker Toolbar - Cont'd

Select an Icon from your Stencil that belongs to the Macro Shape you are working on. Make sure nothing on your design page is selected. Then click on the Icon Maker in the Developer Toolbar. This will make a copy of the Icon and place it on your design page. Put it in the Macro Enclosure for the appropriate macro.



Generating your Stencil

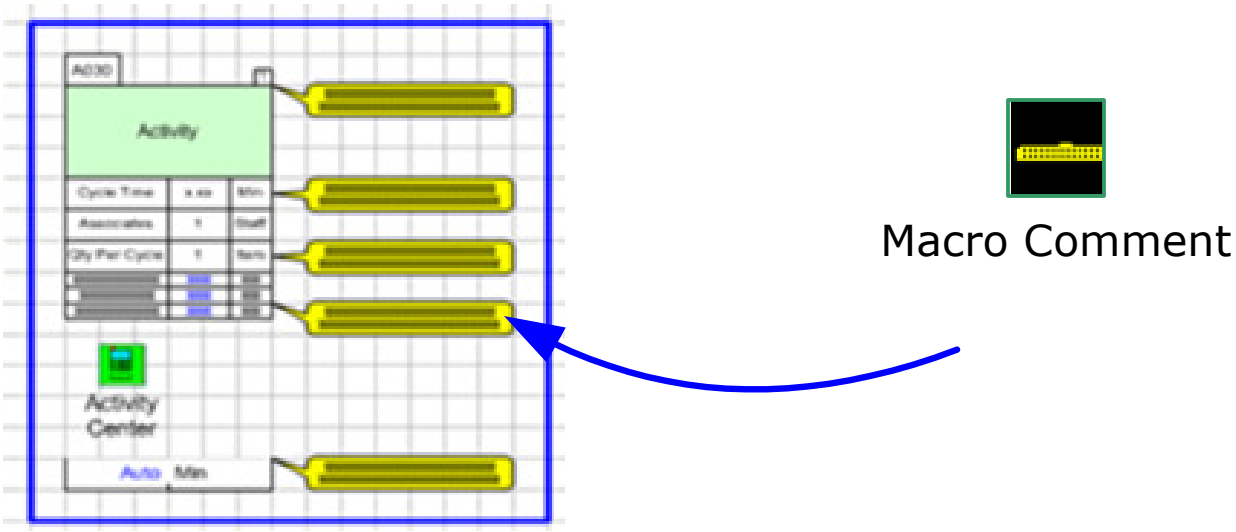
eVSM Macro Maker 3

Once your design page is complete, simply select any one Icon in your new Stencil then click on the eVSM Macro Maker 3 Icon in the Developer Toolbar. You will be prompted that your are replacing (no. of masters) in the Stencil. Click ok and your masters in the Stencil will be replaced with the ones on your design page.

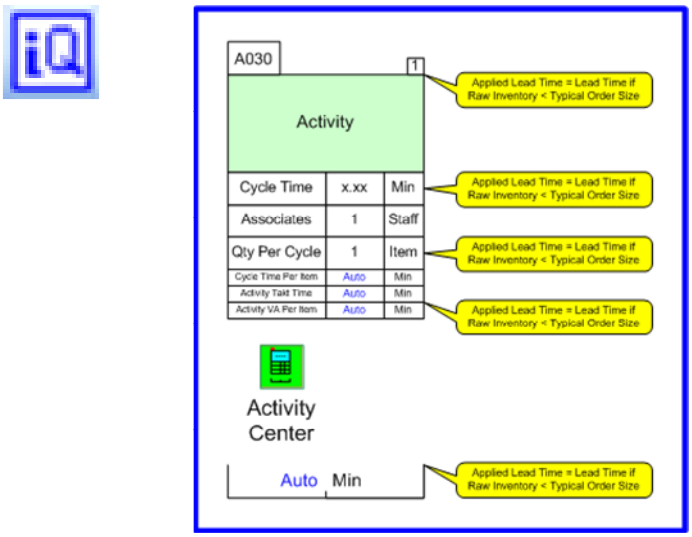
All changes to the Stencil MUST be made through the design page. This will ensure stability. You can now save the Stencil and deploy it by simply sending them the Stencil file (.vss).

Creating Help for your shapes

Create contextual help for your shapes by using the Macro Comment call out from the Quick Maker stencil.



When a user selects an Icon in the Stencil then Clicks the iQ button in the toolbar, an exact image of the Macro from the Design page is placed on the map with the help text that you included in it's enclosure.


A030
1
Activity
Cycle Time x.xx Min
Associates 1 Staff
Qty Per Cycle 1 Item
Cycle Time Per Item Auto Min
Activity Takt Time Auto Min
Activity VA Per Item Auto Min
Activity Center
Auto Min
Applied Lead Time = Lead Time if Raw Inventory < Typical Order Size

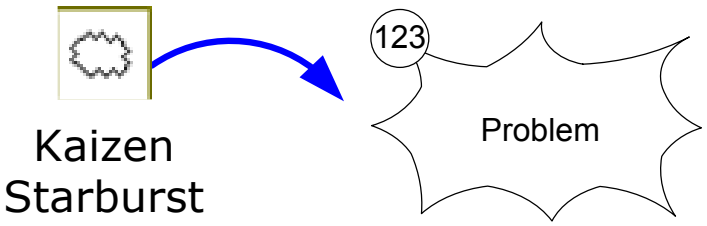
18. Managing Improvements

Help Movies

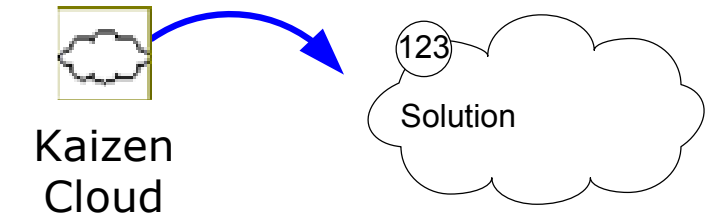
Annotate Problems/Ideas for Kaizens

Create Model Copy for Editing

Map Annotation with Kaizen Bursts & Clouds



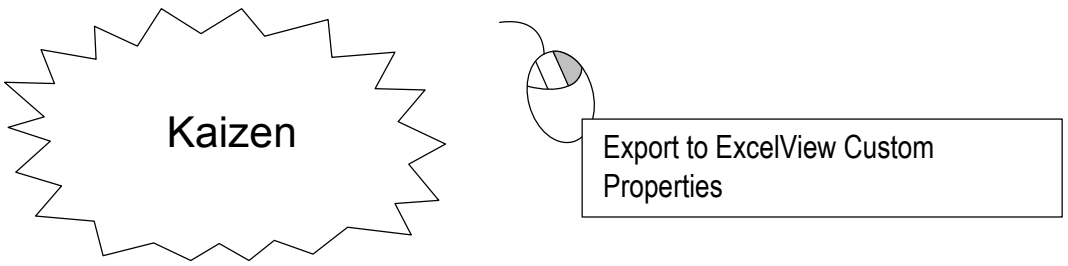
Problems can be documented using Kaizen bursts



Solutions can be suggested using Kaizen clouds

Adding Attributes to Kaizen Shapes

Additional attributes can be added to Kaizen Bursts and Clouds by selecting the shape with a right mouse click and picking the “View Custom Properties” menu.

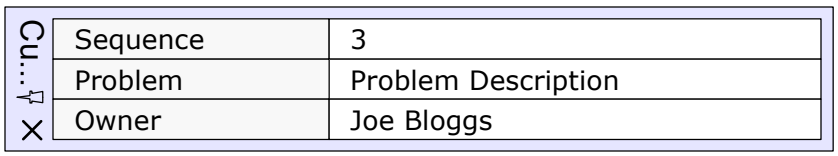


Generating Kaizen Reports

eVSM Kaizen Report

The eVSM Kaizen Report toolbar button scans the map for all Kaizen shapes (Starbursts and Clouds) and exports custom properties associated with the shapes to two Excel spreadsheets (Pagename_Starbursts and Pagename_Clouds).

The standard custom property user interface in Visio allows Lean Practitioners or organizations to define their own custom properties for export.

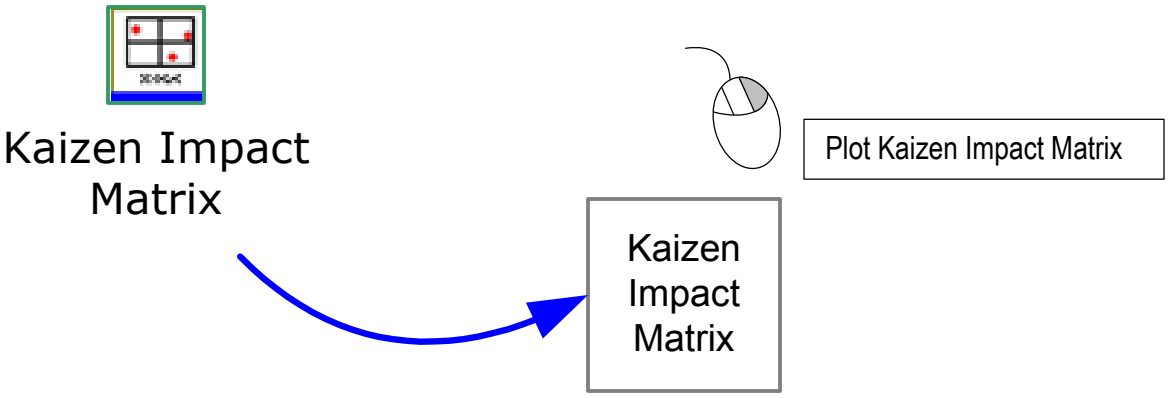


This functionality allows export to Excel and via Excel to other products like Microsoft Project Manager. The function replaces the Visio-based Kaizen Table in earlier releases.

Note that the Kaizen Report export is unidirectional and a new report is generated every time overwriting any existing report.

Version 5.29 and later of eVSM include “Impact” and “Difficulty” custom properties that can be used to plot a Kaizen Impact Matrix

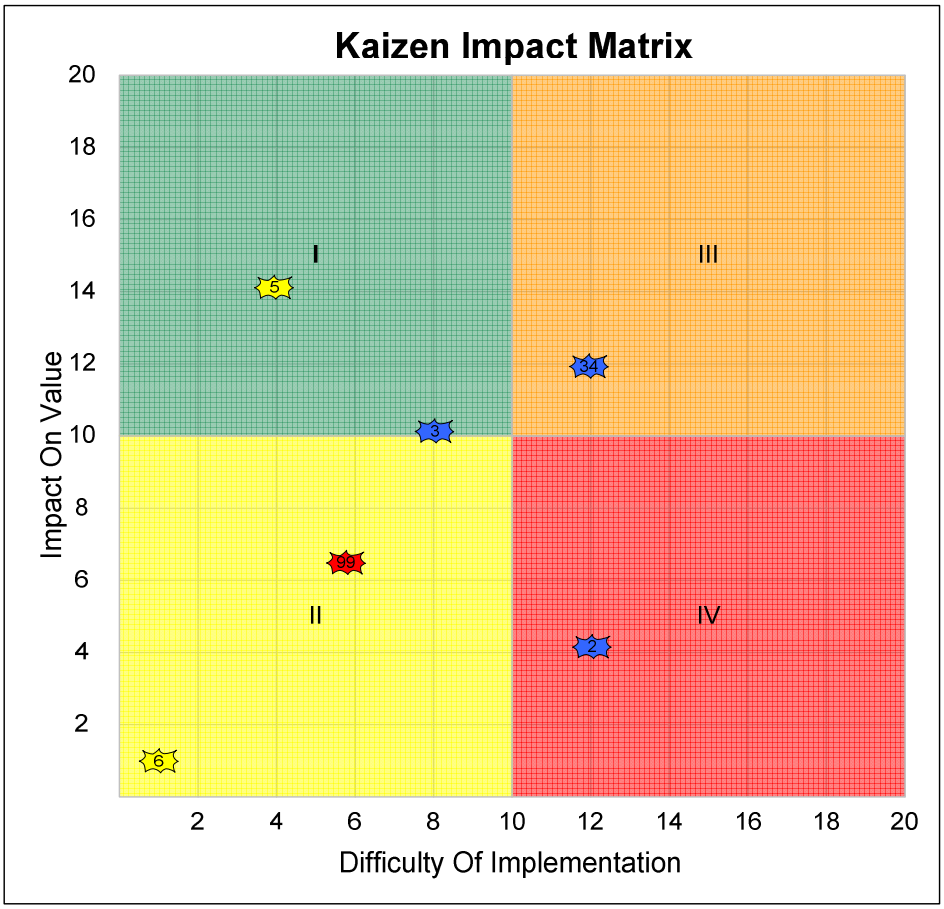
Plotting a Kaizen Impact Matrix



The Kaizen impact matrix was introduced in eVSM V5.29 and uses the “Impact” (Impact On Value) and “Difficulty” (Difficulty of Implementation”) custom properties of kaizen burst and clouds to plot an impact matrix as shown on the next page. The goal of the matrix is to help select kaizens for implementation.

The mini-kaizens in the matrix copy the custom properties of the originals (map kaizens) so its useful to have the custom properties window (View > Custom Properties Window) open while selecting these shapes. They are numbered based on the ID’s of the Kaizens on the map (ID’s are circles glued to the top left of the kaizen shapes). A Right mouse click on any of the mini-kaizens allows for selection and highlighting of the parent map kaizen.

If map kaizens are modified than the Impact matrix can be updated by selecting it with a right mouse click and the command “Update Chart”.



Making a Model Copy

eVSM Model Copy

This function creates a duplicate of the whole VSM model. A VSM model consists of the map and the associated Excel worksheet. It is generally used when a duplicate map is necessary for “what-if” studies and for creating future state versions.

This is also the preferred method of effectively renaming a page.

19. Sharing with eVSM

Copy and Paste into PowerPoint or Excel

Visio shapes can simply be selected, copied and then pasted into other Microsoft office applications like PowerPoint and Excel. Be sure to paste a picture using the Paste As… command. This will allow re-sizing of the pasted picture without requiring editing and font adjustments.

Visio Viewer

A free Visio Viewer is available for download at:

http://www.microsoft.com/downloads

Acrobat PDF

Acrobat PDF allows capture of any size drawing in a single file, which can be viewed with the free Acrobat Reader, and is easily printable. On-screen viewing is good, it is searchable, and supports password security. The author must have the Acrobat Distiller software, the audience only need the free Acrobat Reader. Steps to convert an eVSM map to PDF:

1. Click the “File>Print…” menu.
2. Select Acrobat Distiller as your Printer, and click “OK”.
3. You will then be prompted for the PDF file name and the location to save the PDF file in.

Publish to Web

eVSM maps can be converted to web format which can be viewed in any web browser. The web format files can be uploaded to a web server or emailed.

Steps to convert to web format:

1. Click “File>Save as Web Page…”.
2. In the “Save As” dialog. Click, the “Publish…” button.
3. In the “Publish” dialog, click the “Format Options…” button, set format to “GIF”, and click “OK”.
4. To later view this in a web browser, just open the html file with the same name as your eVSM filename in a web browser.
5. The conversion to web format creates a collection of web files. All of these need to be included in any email transfers or upload to a web server.
6. To open the drawing in a browser, click the *drawing_name.htm* file.

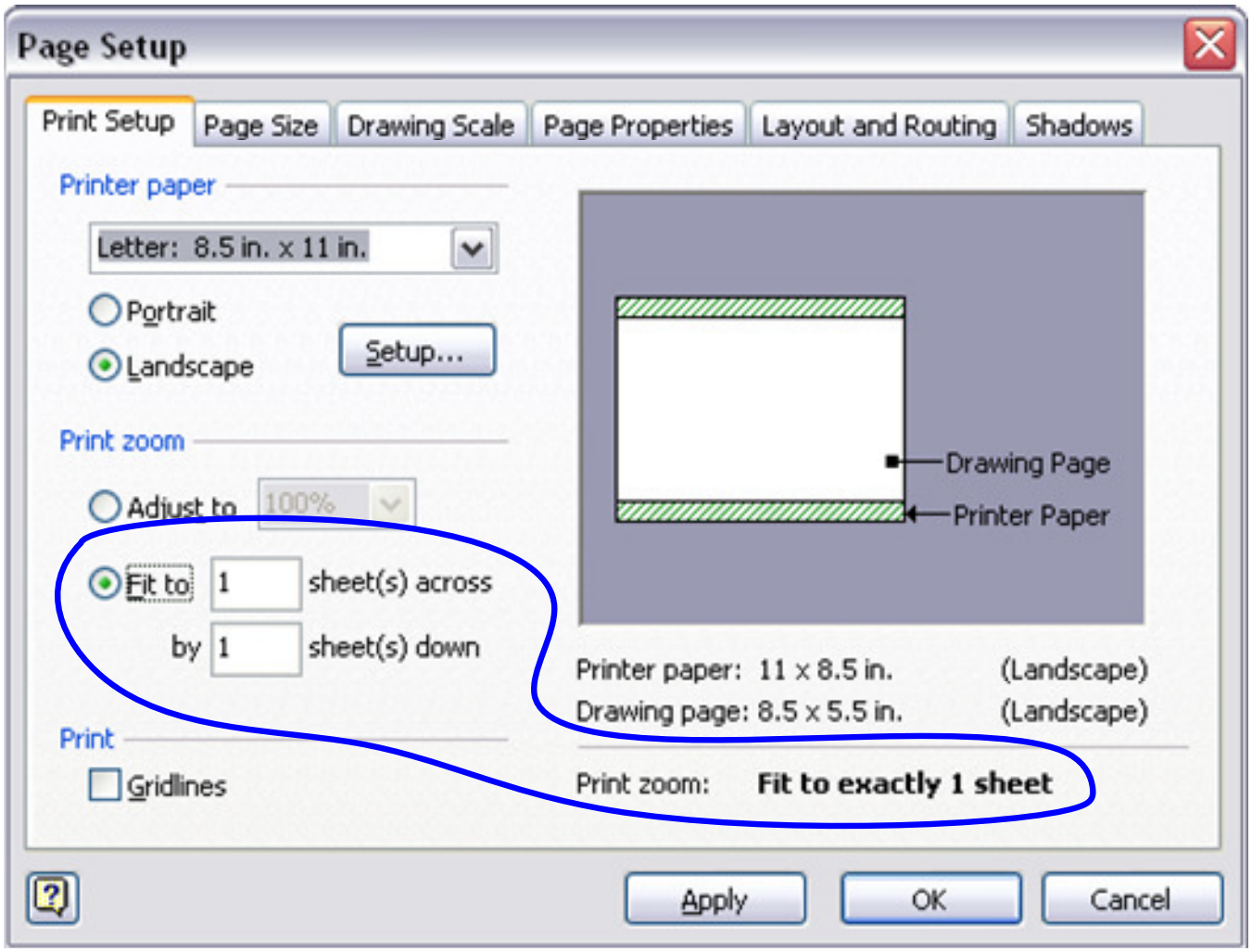
Convert to Bitmap

Common bitmap formats such as JPEG, GIF, and TIFF can be viewed in most browsers without any additional software. eVSM maps can be converted to these and other graphic formats from the “File>Save As…” menu. In the “Save As” dialog, click the “Save as type” pull-down and select the format.

Printing

Visio allows drawings of any size. The drawings can then be printed on any size paper supported and available on the printer.

When the drawing size does not match the paper size, you can either print across several sheets, or shrink (or expand) the drawing to fit the paper by clicking “File>Page Setup…” and then checking the “Fit to 1 sheet” radio button.



Print (Cont'd)

The "File>Print Preview" function can and should be used to assess the print output before committing the drawing to paper.

Printing Problems

The eVSM Software essentially generates a Visio file. The printing of the file is handled by standard Visio functionality. Problems printing from Visio could be due to Visio, the print driver, or the printer.

Here are some suggestions if you have problems printing from Visio:

- Make sure you have the latest Visio Service Patch installed
- Try copy/pasting your VSM to PowerPoint or Excel and then print from there
- Convert your VSM to Acrobat PDF and then print the PDF file

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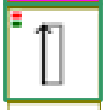	Bar Height Gadget	160
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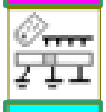
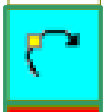
	Cumulative Bar Chart	220
	Curvable Arrows	31 ,113 ,129
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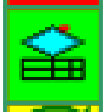	Decision Center	59 ,86
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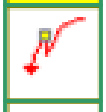	Electronic Info Flow	31 ,84 ,113 ,129
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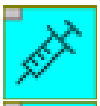	Healthcare Items	159
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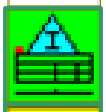	Inventory Center	27
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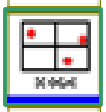
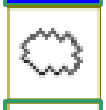
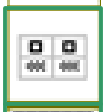
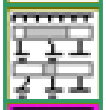
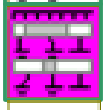
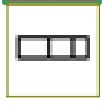
	Kaizen Impact Matrix	240
	Kaizen Starburst	159 ,238
	Key Creator	68 ,96 ,143
	Ladder Chart	223 ,225 ,227
	Lead Time Chart	67 ,93
	Long NVU	134

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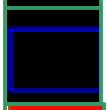	Macro Enclosure	233
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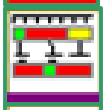	MCT Map	128
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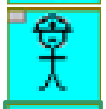	Mfg People	159
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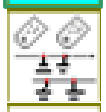	Milestone Chart	219
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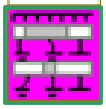	NVA Timeline Chart	43

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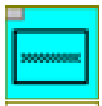	Operation Shapes	131
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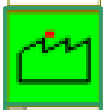	Outside Center	26 ,56
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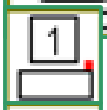	Path Locater	86 ,203
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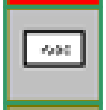	Plan Activity	109 ,125
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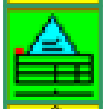
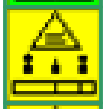
	Queue Center	56 ,80
	Queue Demand	57 ,80
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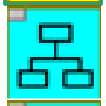	Service Depts	159
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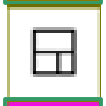
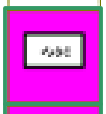
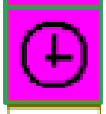
	Short NVU	135
	SM Activity	110
	SM Wait	110
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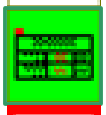	Staff Summary	40 ,65
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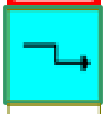	Stepped Arrows	31 ,113 ,129 ,131
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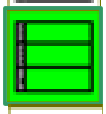	Swimlane Frame	66
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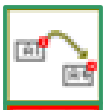	Tag Seq Arrow	37 ,84 ,89 ,201
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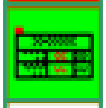	Time Summary	24 ,41 ,54 ,65 ,88 ,91
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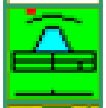	Transmit Center	35 ,52 ,64 ,90
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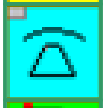
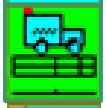
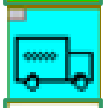
	Transmit Shapes	84 ,136 ,137 ,159
	Transport Center	22 ,35 ,76 ,90
	Transport Shapes	136 ,159
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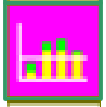
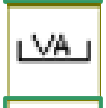
	VA / TT Chart	43
	Value Added	134
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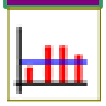 XY Chart 215 ,227

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eVSM On-line Help	http://www.evsm.com/help
eVSM Installation Help	http://www.evsm.com/install
eVSM Training	http://www.evsm.com/training
Transfer eVSM to new PC	http://www.evsm.com/transfer